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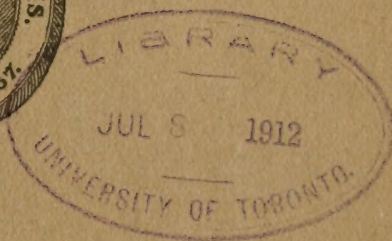
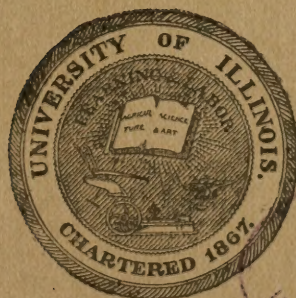
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UNIVERSITY OF ILLINOIS SCHOOL OF EDUCATION

BULLETIN No. 6

Proceedings of the High School Conference
of November 23, 24, 25, 1911



URBANA, ILLINOIS
PUBLISHED BY THE UNIVERSITY

The 1912 Conference Will Be November 21, 22, 23.

UNIVERSITY OF ILLINOIS
SCHOOL OF EDUCATION

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Proceedings of the High School Conference
of November 23, 24, 25, 1911

Edited by HORACE A. HOLLISTER

URBANA, ILLINOIS

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STATISTICS OF THE CONFERENCE OF 1911.

Total registration exclusive of the University community	813
Number of public high schools represented in Conference	268
Number of academies represented.....	4
Number of representatives of normal schools, colleges and universities registered	57
Number of institutions represented	18
Number of county superintendents present.....	5
Number of teachers present whose expenses were paid in full by their districts.....	107
Number whose expenses were paid in part.....	73
Number of high schools represented by delegates whose expenses were paid in full or in part.....	105
Registration by sections:	
Administrative.....	88
Agricultural.....	20
Biology.....	45
Classics.....	66
Commercial.....	30
Domestic Science.....	68
English.....	135
Manual Arts.....	28
Mathematics.....	71
Modern Language.....	34
Physical Sciences.....	54
Social Sciences.....	53
Music Section.....	18
Geography Section.....	4
No. by whom no Sec. was given.....	99
 TOTAL.....	 813



CONFERENCE COMMITTEES, 1911-12.

General Conference Committee: H. A. Hollister, University, Chairman; B. H. Bode, University; H. L. Rietz, University; W. C. Bagley, University; A. P. Johnson, Urbana; W. W. Earnest, Champaign; C. P. Briggs, Rockford; A. C. Norris, Rockford; T. W. Galloway, Decatur; C. E. Allen, Carbondale; J. C. Duncan, University; Helena M. Pincomb, University; J. F. Hosie, Chicago; J. L. Rich, University; E. J. Lake, University; E. B. Lytle, University; O. P. Klopsch, Peoria; Constance Barlow-Smith, University; C. H. Elliott, Carbondale; Silas Echols, Mt. Vernon.

The first six named constitute the executive committee.

M. L. Flaningam, Urbana, General Secretary of the Conference.

Committee on Program of Studies: H. A. Hollister, University; F. D. Thomson, Springfield; J. Calvin Hanna, Oak Park Township High School; J. G. Moore, Streator; Chas. A. McMurry, DeKalb Normal School; W. C. Bagley, University.

Administrative Section: C. P. Briggs, Rockford; A. P. Johnson, Urbana; H. H. Edmunds, Clinton; M. L. Test, Mt. Sterling; J. F. Wiley, Mattoon.

Agricultural Section: A. C. Norris, Rockford; F. M. Giles, DeKalb; Renzo Muckleroy, Carbondale; G. W. Sutton, Oakland; William Hedgecock, LaSalle Township High School; L. H. Darling, Plainfield.

Biology Section: T. W. Galloway, Decatur; Guy L. Koons, Murphysboro; W. W. Whitney, Chicago; O. W. Caldwell, University of Chicago; Faith McAuley, St. Charles; T. L. Hankinson, Charleston, secretary.

Classics Section: C. E. Allen, Carbondale; Frances Sabin, Oak Park Township High School; Mary L. English, Decatur, secretary.

Commercial Section:	M. H. Robinson, University; Jay A. Ford, DeKalb Township High School; E. L. Boyer, Chicago Heights; Charlotte VanDerNeen, Joliet Township High School; John A. Haight, Rockford.
Domestic Science Section:	Helena M. Pincomb, University; Helen Day, Peoria; Isabel Bevier, University; Henrietta Bowman, Charleston; Carrie Galt, Springfield.
English Section:	J. M. Clapp, Lake Forest University; Laura Tanner, Jacksonville; Florence Skippington; Caroline Rice, Peoria; B. C. Richardson, Alton; W. W. Hatfield, Chicago; H. G. Paul, University; W. F. Mozier, Ottawa.
Geography Section:	J. L. Rich, University; D. C. Ridgley, Normal; F. W. Cox, Robinson; Harry Clem, Chicago; Annie L. Weller, Charleston.
Manual Arts Section:	E. J. Lake, University; A. P. Laughlin, Peoria; Clara E. Ela, Normal; Anna G. Brown, Jacksonville.
Mathematics Section:	E. B. Lytle, University; C. A. Pettersen Chicago; E. H. Taylor, Charleston.
Modern Language Section:	O. P. Klopsch, Peoria; D. H. Carnahan, University; W. W. Earnest, Champaign.
Music Section:	Constance Barlow-Smith, University; Sallie J. McCall, Urbana; C. E. Lawyer, Danville; M. L. Test, Mt. Sterling; Margaret M. Salisbury, Chicago.
Physical Sciences Section:	C. H. Elliott, Carbondale; F. R. Watson, University; H. B. Loomis, Chicago; H. G. Schmidt, Belleville.
Social Science Section:	Silas Echols, Mt. Vernon; Mary F. Childs, Evanston; U. S. Parker, Quincy; L. A. Fulwider, Freeport; L. M. Larson, University, secretary.
Committee on High School Libraries:	P. L. Windsor, Librarian, University; Ada Stuart, Peoria; Elizabeth McKnight, Joliet.
Committee on Physical Training in High Schools:	Gertrude E. Moulton, University; Mabel Cummings, Normal; H. B. Camann, Chicago.

EDITORIAL COMMENT.

The Conference was everywhere spoken of as a great success; and certainly, if measured by numbers and enthusiasm, the popular verdict was just. We should not permit ourselves, however, to lose sight of the fact that the greater evidences of success were with those groups where attempts had been made to work out definite problems.

In this day of meetings for stirring enthusiasm and getting inspiration it is not easy for many of us to get the significance of real accomplishment as a means of arousing interest. We have repeatedly said to teachers, principals and university professors that we are not seeking large numbers but workers; not a great body of those passively receptive, but earnest groups of those who are willing to be the aggressors in the field of educational advancement.

In saying this we feel sure that if we can have a sufficiency of this aggressive spirit, the matter of numbers will take care of itself.

It is natural, but a mistake, for a section committee to wait until fall and then "make" a program. It is the all-desirable thing to set up a problem at the Conference, or immediately after, and be prepared to report progress or a solution at the next session. There is then no need of making a program,—it is already provided. And what is still more to the point, the hungry who come to the meeting will then surely be fed.

Much good work was begun at this Conference which, if followed up, would give great returns for the labor expended.

Shall we not strive, more and more, to make the Conference a producer, rather than permitting it to become a mere consumer, as is too often the custom with our educational gatherings?

The chief cause for delay in publishing these proceedings was the bad condition in which much of the material came to our hands. It should be definitely understood by all who present reports or discussions that a finished paper or, at least, a carefully arranged summary of each production, should be ready to

turn over to the general secretary at the meeting. The minutes of the sections should also be carefully edited, by the one who takes them down, before turning them in.

We hasten to acknowledge our obligations to those group secretaries who so carefully did this work, thus saving us much added labor. It was no small assistance, in this connection, to have had the cooperation of our general conference secretary, Mr. Flaningam.

GENERAL SESSION.

The first general session of the Conference was the Round Table of Thursday evening, November 23. This was well attended. After announcements a general discussion occurred on the advisability of prescribing mathematics for college entrance.

The second general session was on Friday, November 24. 8 P. M., Auditorium, Hon. Francis G. Blair, State Superintendent of Public Instruction, Springfield, presiding.

The program for the evening was a symposium: What should be the standard of preparation, both in scholarship and professionally, for high school teachers? Dean George F. James, College of Education, University of Minnesota, Minneapolis; President David Felmley, Illinois State Normal University, Normal; Principal J. Calvin Hanna, Township High School, Oak Park.

The discussion was opened by Dean George F. James of Minnesota; who was presented to the audience by Mr. Blair. Dean James spoke as follows:

The training of teachers for the careers in which they are engaged is a matter of paramount importance. I believe it is the most important problem that confronts the American system of education today. I remarked to one of my friends the other day, a high school professor, that the worst teaching in the whole system was done in the high school, and he smiled and said, "Yes, except in the colleges." There is a good deal of truth in his comment; for surely the man who looks forward to college teaching is too often indifferent to the primary question, the consideration of himself as a teacher, and too often neglects specific preparation for that work.

On the other hand we get the very best type of instruction in the kindergarten and primary schools. Here we have the teacher who is drawn to her occupation by natural ability and inclination, and fairly well equipped by general study and special training. The kindergarten teacher, even at the beginning of her service, has at least twelve years of general schooling and two years of professional training to place her beyond the pupils who are under her charge. The same holds true in a somewhat less degree of the primary school. Even in the rural school, friends, bad as it is, it is not quite so difficult today as is the problem of efficient teaching in the high schools. The rural school cannot get teachers from our normal schools in sufficient numbers but it at least is coming to depend with some assurance on county training schools, and better still in several states on training departments for county teachers which are established under competent direction in connection with well

equipped and well supported public high schools. Moreover the rural schools will profit presently by the consolidation of districts, which will bring about a higher average of instruction. In a word then, the country school, the graded school, and the college are all in a more hopeful condition so far as efficient teaching is concerned than is the high school.

How, then, can we secure competent, well informed, and well trained teachers in our secondary schools? I believe in this question, friends, that it is one where it is worth while to speak English and not that prevalent dialect which a delightful critic of school people has labeled "pedaguese." I am not going to speak "pedaguese" but English. I am going to speak very frankly here tonight.

In the first place we shall all approach this question with exceptional disinterestedness. The only thing worth considering is the good of the public high school; all other considerations are minor or out of place. How any other type, kind or grade of school may be affected by the ultimate solution of this problem is a matter of entire and not of relative indifference.

Nextly we must have perfect open-mindedness. The training of teachers is so undeveloped, the situation is so incoherent, that no one can forecast with any degree of certainty what plan may be found after much reflection and experimentation most feasible and successful. School conditions are so different in the various parts of our country that no proposition as to the training of secondary teachers can be expected everywhere to recommend itself immediately and obviously as the best, but on the other hand so provisional are our present efforts at training that we must have clearly in mind that if a rational plan is to be advanced the situation must be modified to suit the plan and not the plan changed to suit the conditions of a given locality. In the training of teachers there is no such thing as the divine right of a public institution. I have one very dear friend, and that man is the head of one of our best schools, a normal school,—who maintains with all seriousness that not only should all kinds of teachers be prepared in the normal school but that no kind of teachers should be prepared elsewhere. It is with the instinctive reverence that we all feel toward those who have guided us in our youth and with some trepidation that I am tonight going to take issue with his views. On the other hand there are some university men who think that all teachers should be prepared at the university, forgetting that while the university first began to train teachers in the mediæval days, the preparation was purely of a general type, and that at no time since the development of modern schools has the university very seriously considered this its function in regard at least to elementary or secondary schools. I see no good to be gained by avoiding the underlying thought on all occasions when this topic is discussed at a general gathering of school people, and therefore think we may do well to put the problem plainly:—

Shall the high school teacher be trained in a normal school, or college, or in a special teachers' college?

I feel under some disadvantage in endeavoring to answer this question from the point of view of the university because I see in another speaker the President of a normal school under the shadow of which I was born and within whose walls I was largely bred. Whether I can overcome the instinctive reverence which I feel for the President of the Illinois Normal University sufficiently to present considerations which may not highly command his approval and applause, I am not certain. It is to my advantage, however, in this discussion that I was not merely trained in the kindergarten and in the high school of that same institution, but I was engaged for many years as a teacher in a western normal school and in a normal college of the south; I believe this fact frees me from that purely academic attitude on this question which is character-

istic of some university men, or rather, I should say, of some men who are at work in departments of education in the university, since our colleges and universities, generally speaking, have little or no feeling or opinion on the matter.

How great our problem is and how unsatisfactory is our present situation in regard to secondary teaching may be seen by a brief summary gleaned from the report on certification of teachers recently issued by the United States Bureau of Education from the pen of Mr. Updegraff. From this most suggestive document we learn that three-fourths of the states of this Union admit legally to high school teaching on the basis of a six year course of study beyond the elementary school. In three-fourths of the states two years beyond the high school qualifies for a license for secondary teaching, in less than one-fourth of them three years, and in the remainder one year; and this last includes a number of states where the requirements are so elementary that no special statement appears in this respect. As against the status of the elementary school and the college, the high school stands out with a teaching force rapidly changing and a large number each year of new recruits who are either short in scholarship on the one hand or in technical training on the other, or in some cases in both.

In a very few cases some experience is also made a prerequisite or an examination is in addition required, but neither experience nor special examination constitutes any notable guarantee of greater efficiency, since the experience need not be either long or remarkably successful and the examination is not a very rigid test applied to subjects already pursued by the candidate in his school course. One has reason to surmise that in other states where a higher level is set by law, pressure is frequently exerted toward breaking down the barrier or contriving some loop-hole through it.

That we have fallen in this country woefully short of a sound standard for secondary teaching is proved clearly enough by our own common practice. The standard is low as compared with either the elementary school or the college. On the one hand the elementary graded school expects fully this much of the young women who desire to secure a license for teaching in it on the basis of their school attendance, and every such candidate offers five or six years schooling beyond the most advanced grade for which such a license is good, while on the basis indicated the high school requires only two additional years of study. On the other hand the college is asking two or three years of graduate work as a condition of assignment to teach in the first and second college years, a requirement therefore of five or six years of study beyond the grade of the students who are to be instructed. Moreover these appointments number in any higher institution only a small percentage of the entire teaching force; the newly selected instructor is expected to teach only one subject in which he has made definite and special preparation; he remains as a rule permanently in service and is fully aware from the beginning that advancement will come to him only by successful experience and continuous and arduous study. As against the status of the elementary school and the college, the high school stands out with a teaching force rapidly changing and a large percentage each year of new recruits with a low average of scholarship, or on the one hand possessed with a somewhat greater acquaintance with the subject matter balanced by decidedly rudimentary ideas as to what the head school is, and what it aims to accomplish and of what its mode of organization and management should be.

The men who are in charge of school systems in the towns and cities of this country have a right to demand and they are beginning in no uncertain tone to demand three things of all who seek positions as teachers: first, at least a fair acquaintance with the subject to be taught;

second, a reasonable amount of native teaching ability; third, a definite idea of the nature of the school and some acquaintance with school room management and the ordinary routine of instruction and government. Each of these is a perfectly legitimate demand and it does not concern us to ask particularly on which of them the greatest stress is or should be laid. If superintendents in various states are making a special point of practical acquaintance with school procedure, the reason is easily seen in the indifference toward professional preparation manifested by some institutions from which young men and women seek appointment as high school teachers although in them they cannot in any technical sense be said to have been trained.

Again, if superintendents in considering candidates sometimes a little unduly give the advantage to experience or to practical preparation even when not accompanied by fair scholarship, the fault is not to be charged against them but rather against the schools which have failed to unite a professional discipline to the opportunity of liberal culture.

It may be worth while to remark parenthetically that in the discussion of qualifications for teaching, we should not allow our thought to rest too much on the number of vacancies to be filled each year and thereby be impressed with the danger of a lack of candidates in case requirements are put higher. Many new factors would immediately enter into the problem if a reasonable standard were adopted and in more than one particular the situation would be sensibly lightened. We might carry through the admirable suggestion that not merely the training school for teachers be subsidized by the people but also the prospective teachers themselves, thus bearing out the parallel suggested by our present treatment of those who are at Annapolis and West Point, the prospective defenders of our civilization in another but in no more real sense than is the teacher of our public schools.

What shall we demand and what can we expect in the training of high school teachers?

Before a specific answer can be given to this question, some very important decisions should be made within the general field of the certification of teachers and from a somewhat long experience and a close contact with this phase of school administration I feel impelled to point out two fundamental and widespread defects in the legal licensing of teachers:—

(a) Our practice inclines the young man or the young woman to try to get into the teaching profession by road of an examination and not by way of a fixed school course. Now I believe that such a course would be a fundamental improvement. True it is that a school course somewhat perfunctorially followed up through successive years gives no guaranty of efficiency. An examination which proves the full power of the individual to focus experience, study and reflection to meet a given situation, is an excellent test for the prospective teacher; but that kind of an examination, has not been with us anywhere or for any purpose successfully evolved. I have not much hesitation in suggesting that the examination as we know it is in almost every particular less effective a means of selecting young men and women for teaching than will be found in a well devised scheme of certification on the basis of school records.

(b) The candidate who prepares adequately for teaching at much sacrifice and a great expenditure of time and money is given no proper advantage by our school legislation as compared with the one who follows up a short course, takes the examination road into the profession and at the same time gains an experience that seemingly more than counterbalances the other's years of preparation. If one glances through the laws on the certification of teachers in many of our states, he will see that side by side with a diploma issued on the basis of

graduation from a reputable school another certificate of equal validity is granted to other candidates who are by many more years the inferior of the first in scholarship, training and experience. In more than one commonwealth proud of its educational system we find, for example, no legal advantage offered to normal school graduates as compared with young men and women who have in a public high school course received some little instruction in methods of teaching, and school management.

In order to clear up the situation, I believe that all who are interested in sound teaching should endeavor to secure five changes in the law and practice in regard to certification:—

(1) We should get a clear differentiation between the certificates for elementary and for high school teaching. Even if the secondary license were given to the holder of the elementary certificate merely on the basis of successful teaching in a lower school, which is a most unsatisfactory provision, at least the distinction would be valuable in the face of the prevalent custom of many of our commonwealths of labeling even a temporary and elementary certificate good for teaching in any school, since the difference in terminology would be the first step toward a distinction in fact between the two kinds of certificates.

(2) We should work for a careful guarding of the road to certification through county or state examinations. Any experienced school man knows with what difficulty the integrity of these tests is maintained alike in the framing of questions and in the examination of papers; and by integrity I mean the honest recognition of a sufficiently high standard in both of these particulars. When we come to some kind of interstate or national recognition of teachers' certificates we shall be forced to a certain standardization of examinations. Meanwhile in each commonwealth the primary responsibility of every teacher and particularly of every principal and superintendent is the upholding of a high ideal and insistence on adequate tests. I was just a little surprised when I heard it asserted that often the general impression on the subject of certification is that the first thing is the position, that the one who can get a position can get a certificate. What if we should hear it said that one who can get a patient can get the degree of M. D., or one who can get a client can get admission to the bar,—any one who can get a job can get a permit?

The intrinsic value of experience, however successful, should be much more thoughtfully weighed than at present, especially where it is made a qualification not merely for the continuance of a license but for the securing of a higher certificate. There is no serious reason why a teacher who has been successful in a given school for three years should not on the basis of that fact coupled with the original qualifications be given a further certificate good for three or five years, although we are coming to recognize the need of some proof of continuous growth aside from the fact of successful experience and to ask that such growth be indicated in one way or another at various stages of the professional career. There is, however, very good reason why we should not accept successful experience as a sufficient qualification for a license to teach in some other type of school for which special training is recognized as desirable. In too many places we find the anomalous situation that the law permits and even school opinion sanctions the promotion of the teacher who has been successful in a given school to possibly quite different work in another school under circumstances where there is no adequate guarantee of fitness or prospective success.

(4) We are much in need of an accurate treating of all school courses which legally lead to certification. Our curricula should be

standardized: our methods of teaching, our equipment and the other conditions of successful training should be in all recognized schools brought up to a definite and fairly uniform grade. At present we are very slowly and with very much friction making toward a provisional and tentative standard. The work should be easily hastened if the intelligence, energy, and devotion of our teachers and supervising officers were cooperating in a solution of this problem.

(5) Not less important than the considerations already advanced is the need of insistence that there shall be no short cuts to legal certification. We should recognize an equality of values, year for year, in all institutions which are acknowledged as training schools for teachers and whose graduates are certificated without any examination or with some merely perfunctory tests. Again in this particular if we examine the situation in one state after another, we find the strangest variation in both the law and the practice. I am well assured that in one great commonwealth a given form of certification can be secured in one school in from one to two years less time than is requisite in another public institution of the same state. There will be no professional health in us until we learn the obvious lesson from the practitioners in law and in medicine that there should be uniform conditions of practice in accordance with our best judgment as to the good of the work in which we are all engaged. Why is it that medicine is today a profession worthy of being followed? It is because the doctors got together and demanded the legislation which safeguarded their work. Why is it that law is a career? Why does it offer constantly improving and increasing rewards to men who are engaged in it? It is not again on account of public sentiment, it is because the lawyers got together and set a standard for the men who are to work in that profession. The same is true, in a way, about divinity. Our work will never be a profession until the teachers themselves put up barriers to safeguard it and to do all that can be done to maintain in our work the uniformity of standard necessary to make it a profession and a career.

The question as to who may teach school used to be answered by the general affirmative, "anyone" and "anyone" did as a matter of fact teach school. A little later the answer came to the same query, "anyone may teach who knows," and much later the final answer, "anyone who knows and who knows how." We have all delighted to read in our histories of education of that eminent authority of three centuries ago who insisted that a man can very well teach even what he does not know. Sometimes I think that we have not advanced very far beyond that point of view. Not long ago in my hearing a man of no little reputation among teachers maintained that he *preferred* a teacher with a knowledge only of the exact facts that he is to present on the ground that wide acquaintance with the subject matter interferes with clearness of presentation! Verily the Roman governor seems to have sounded a warning for the training of teachers when he cried out to the Apostle, "Paul, thou art beside thyself; much learning hath made thee mad!"

Nevertheless I take it that we are all prepared to agree with the proposition that both scholarship and professional training are necessary for the teacher; that from four to six years of discipline should distinguish in any school the teacher from the pupil; that the professional training should be directed toward a knowledge of mental processes, some acquaintance with schools past and present, some conception of the aim of education and *practical* familiarity with methods of instruction and modes of school organization and administration, and with legal prescriptions as to the conduct of the schools and of school systems.

It is not necessary to argue before this audience in favor of these two qualifications, and it would not be necessary so to argue to any audience except for the fact that our colleges from which many teachers have come have quite ignored the thought of technical training and our normal schools from which many other teachers have come have emphasized it to the partial obscuring of the requirement for adequate scholarship. If we grant without further discussion that high school teachers should have at least four years of study beyond the school in which they seek appointment and that they should unite their general study with a specific professional training, the question immediately comes as to where we shall plan to get our teachers. Certainly it is difficult now to get enough good material for the schools. Our drag net of pedagogic ability should be wide enough to guarantee such a number of provisional candidates as may allow of the gradual sifting out of the weaker and indifferent and still leave a sufficient number for final appointment and preferment.

In attempting to settle upon the means of training teachers for any schools, three principles must be observed. In the first place the opportunity for training must be adequate. In the second place it must be organized with the maximum of economy. In the third place the chance for training must be offered where the requisite number of young men and young women may be attracted to it; it must be easily available. The factory in other words must be where the raw material is available. The three conditions of adequacy, economy, and availability our state normal schools have generally met in the fairly local opportunity which they have offered to young people who propose to go into teaching, and in the admirable training of the elementary school which they have organized with a maximum of efficiency and economy. With these natural advantages, is it advisable that our normal schools should be developed into training colleges and that we should plan to draw from them the teachers not merely for our elementary schools but for our secondary schools as well? I trust that I shall not seem discourteous in putting the question thus bluntly. The normal school has done so much more in training teachers that we can get at the point of our discussion better in this way than in any other. This is a practical problem of extreme significance which is being considered very generally throughout our country. Certain *a priori* considerations are patent even to the casual observer. Some manifest advantages and disadvantages are revealing themselves where the normal school is becoming a normal college. The prosperity and the efficiency of our public school demands a thoughtful and impartial consideration of the whole problem. To my mind the interest of the secondary school is alone to be considered. Whether the university would be strengthened by the addition of a great training school for teachers is quite beside the problem. That the normal school desires to prepare high school teachers is natural and may be commendable, but its desire again should be reckoned of little significance in our discussion, although we may recognize as legitimate the complaint in many states that the somewhat restricted function of the normal school lessens its efficiency and usefulness in the whole system of public instruction. A complaint of this kind deserves a hearing, and, in so far as the evil exists, some remedy should be found, but the remedy will come incident to the sound adjustment of all means for the training of teachers rather than as a local nostrum applied to cure what may prove to be a symptom rather than a disease. For certain definite reasons, I believe that it is best for the school system that our normal schools continue to train teachers for the elementary schools and that the preparation of high school teachers be reckoned the duty of the university. I venture to enumerate these somewhat as follows:

(1) A sufficient task has fallen to the public normal schools in their historic function of preparing teachers for the common schools. Even within this field they have been able to answer only to the demand of the graded schools, since almost nowhere do the normal schools prepare any considerable percentage of the country school teachers of the commonwealth. If upon the normal school is definitely laid the task of preparing secondary school teachers, I believe that there is very much danger that unconsciously the emphasis in that institution will be shifted from the elementary to the high school and that the fundamental responsibility of preparing teachers for the *great mass* of our American school children will be neglected.

(2) If normal schools were changed into training colleges with a four year course beyond that of our public high schools the total cost of higher education within any state would be increased almost to a prohibitive degree. We all know that the per capita instruction charge of college students in the third and fourth years averages from two to four times that in the freshman and sophomore years. This greater expense is mostly due to the smaller groups of students which gather for the more advanced instruction in the various departments. The efficient teaching of these subjects does not require a very limited number of students in the various classes. It would be possible in even the largest and most crowded of our universities, perhaps even particularly there, to handle hundreds of additional students in the higher work without any noticeable increase in the budget of the institution. Before any commonwealth commits itself definitely and finally to the support in many different places of four-year higher courses of study, it would be well worth while to take counsel of experience as to what the ultimate cost will be if such a plan is carried out at a respectable level of efficiency. Before the teaching profession in any commonwealth commits itself definitely and finally to such a proposition, its members ought most earnestly to consider the public taxation involved in such a plan as compared with the expenditure requisite to the establishment of adequate opportunity at some one point. Teachers have a right to ask ample opportunities of preparation. The public will undoubtedly give a prompt and generous response to any reasonably unanimous request. All the greater is the responsibility that a fair and just decision should be made as to what and how much shall be asked. School men are professionally bound to suggest the most adequate and economical means of preparation.

(3) The work of teaching furthermore is constantly becoming more specialized. New departments of instruction are in urgent demand. The equipment and teaching force adequate to preparing these call for largely increased outlays.

(4) The most advanced instruction in the training of teachers must therefore be centralized. This may be done by creating a college out of any one of the normal schools of a state, if general consent favors a particular school. This school, however, would suffer the disadvantage of all isolated professional schools, a disadvantage that has been felt by even the best endowed and the most popular and successful schools of divinity, medicine, or law. For its continued efficiency each one is today practically forced to come into definite and close relationship with some general institution of higher learning.

(5) An adequate opportunity for the preparation of teachers should be instituted by our commonwealths at the state university if for no other reason because we find there the requisite raw material in hundreds of young men and young women whose vocational decision has not yet been made and who may be brought to the work of our profession if its opportunities are concretely presented to their eyes.

6 The instruction which is necessary properly to prepare the teacher in the secondary school, the university can give with the maximum of economy. It is a consideration moreover of no little importance that in the university can be secured that degree of specialization which gives to the individual the nucleating center of mental activity, a view point of experience without which no one is liberally trained. It matters little in what line this specialization be done. The economist is as liberally trained as the agriculturalist, the mathematician perhaps not less than the historian, but this *degree* of study in a given line is fundamental to intellectual maturity. Within the university each prospective secondary teacher finds the resources of one department after another open for his election. Only at some central point can the state offer this privilege and opportunity.

(7) We must not fail to recognize the influence on individual development of the university atmosphere at any great center of learning. The graduate and advanced students looking forward to many different kinds of occupations form for the prospective teacher a most stimulating and helpful companionship, and bring him into basic contact with the personalities of the men and women who in different positions will be functioning similarly to him within the field of instruction. Many of us can testify that the greatest incentive to our labors was found in student companionship at the time when college training was flowering into special vocational discipline among the groups that gathered in the lecture halls or around the seminar table.

(8) Recognizing fully the incomprehensible and somewhat persistent indifference of the faculties within our higher institutions to the whole question of the preparation of teachers, I hesitate a little to propose that the university be made the center of this type of professional discipline. Beyond question our universities have been very negligent toward society in this particular. All of us know of one greatly successful training college for teachers which has reached its efficiency because it is particularly independent within a university corporation where its enrollment outnumbers that of all other undergraduates and makes up nearly half of the total of professional students, and in which are granted on the recommendation of its faculty as many bachelor's degrees as are granted in arts to both men and women in the oldest and traditionally the first school within the institution. Nevertheless I do locate the proper place for the advanced training of teachers at the university more particularly in the case of our great state institutions, but I recognize at the same time the imperative need that those institutions acknowledge and completely assume their proper function in the training of teachers and that the state should endow them with an adequate equipment for the most complete theoretical and practical training for this occupation.

(9) Coupled with this proposition I maintain the necessity of granting to the graduates of state normal schools completely equivalent credit, hour for hour in courses in which they desire to go on to university study, for my belief is that the sound combination of training school facilities will be secured by any of our commonwealths when by the association of the university with normal schools, the latter are built into junior colleges through the adequate broadening of their curricula. This arrangement will destroy the deadlock or the "impasse" of which the normal schools are complaining today. It will draw into the university a very large amount of the best possible material and it will bring later to the service of the state teachers for the secondary schools most admirably prepared by liberal study, professional discipline, and experience for the tasks which lie before them.

President Felmley was then announced and spoke as follows:

It is not an easy matter to define the standard of preparation for the high school teacher, to weigh with precision the elements of scholarship, of personality, of professional training, and of professional spirit needed wisely to lead, instruct, and inspire young people in their teens.

In judging a teacher at work a supervisor will note among other things:

1. The teacher's general scholarship—or rather his available scholarship as revealed in his questioning, his illustrations, his readiness and resourcefulness in meeting unexpected difficulties.

2. The teacher's daily preparation as revealed in his lesson planning.

3. The teacher's provision of external means—maps, pictures, apparatus, library references, or apt quotations to aid in his lesson.

4. The teacher's assignments, whether they are clear, definite, well organized, adapted to the student's ability; whether they arouse the student's interest and give him courage to attack his work.

The assignment will be judged as it is made, but is even more justly rated in its results—in the diligence and spirit of the students, the thoroughness and precision with which they have met the teacher's requirements.

5. The teacher's skill in conducting the recitation, his mastery of the technique of the various types of lessons—formal, observational, inductive, deductive, socializing, esthetic, the study lesson, the practice lesson, his skill in questioning, his clearness and directness in exposition.

6. The teacher's energy as determined by physical vigor, and by vital interest in the work.

7. The teacher's power in maintaining order. This will include:

- a. His standard of good order.

- b. His ability to secure good order through well-chosen, well-planned, and well-assigned lessons.

- c. His promptness and resourcefulness in meeting emergencies.

- d. His attention to details of form and position.

- e. His temper, self-control, and personal power.

8. The teacher's attention to the physical needs of the students.

9. The teacher's attention to the language of his students.

10. The teacher's own language both written and oral.

11. The teacher's skill in the school arts such as singing, reading, writing, drawing.

12. The personal fitness of the teacher—

His voice, his style of speech, his manner, his personal attractiveness, his dress; his attitude toward his work and toward his students.

No argument is needed in this presence to prove that the scholarship of the high school teacher must be accurate and extensive. This is fundamental and vital. Not only is his scholarship his business capital, but the mere momentum of his scholarship carries him over many difficulties. It testifies to well-directed effort, to a goodly measure of native ability, to daily tasks faithfully performed, to self-denial in a hundred ways. It wins respect and confidence, prevents disorder, and arouses interest in school work. It sets up ideals to be attained and inspires to diligent study. It is thus the largest factor in both instruction and management. Yet the scholarship of the *teacher* meaning thereby his knowledge of subject-matter must have a quality all its own.

He must be in living contact with the subjects of instruction. He must have acquired the facts, seen clearly the relations, and grasped the principles, but he is not prepared to teach merely by going through the subject. He must have gone around it as well. He must have looked down upon it from above, and looked back upon it from beyond. He must have reviewed it not merely as a subject, but as a process in the unfolding life of the child. Or to use the technical phrases of the day, he must know the subject alike in its logical aspects, in its sociological aspects, and in its psychological aspects. That is, he must know it (1) as a body of thought as any student may know it. Every branch of human learning is a solar system of its own. From a few great luminous central truths, light penetrates the whole firmament of the system, revealing subordinate and correlated truths or principles, orbit within orbit, all in harmony with the central force. It is his to know this logical organization. (2) He must know the subject in its ethical relations, in the social value of its knowledge and disciplines, the reason for its being in the curriculum of the common schools. Without such perception of the educational values of the branch of study the teacher cannot know what material to select, point to, or emphasize. (3) He must know the subject as a succession of experiences in the unfolding life of the student. He must know what topics, principles, illustrations will appeal to the student, will feed his interest, awaken his enthusiasm, develop his power. The fundamental truth uttered by Pestalozzi, that education alike in its order and its methods must conform to the natural process of mental evolution—that there is a certain sequence in which the powers naturally develop, and a certain kind of knowledge and exercise which each requires during its development, and that it is for us to ascertain the sequence and supply the knowledge, is a doctrine just as vital to the high school as to the kindergarten.

For this preparation not less than two years of study in the special subject should be required beyond the ordinary level of high school graduation. This as already stated should include a thorough review of the high school course in this field with especial attention to the reorganization of the subject matter from the standpoint of the teacher—that is from the standpoint that sees educational values on the one hand, the interests and aptitudes of children on the other. It should include also advanced courses to expand the resources of the teacher, clarify his vision, deepen his interest, and nourish his intellectual life.

Besides this two full years of work in the special field there should be extensive study in the related branches that support and buttress the special subject. The teacher of history needs geography, economics, sociology, and political science. The teacher of biology needs geography, and chemistry. The teacher of literature needs science, language, history, sociology, mythology—almost everything that touches human life. Even the teacher of mathematics should know thoroughly the use that his pupils are to make of this knowledge in physics, astronomy, geography, or other subjects.

When high school classes are taught by special teachers, they lose in interest because of their isolation. The explanation of phenomena in one science, is often to be sought in another science. Often the value of the study in hand depends upon consequences that lie in another field. The high school teacher must not be a narrow specialist, nor ought he to be himself taught in his chosen field by narrow specialists.

A few months ago I had a conversation with one of our best known American teachers of geography, who had just returned from six months' trip spent in studying European methods of teaching this subject. In Germany he had been impressed by the extent of the knowledge of geography prevailing among educated people everywhere—something far beyond the knowledge found among the same classes in this

country. He found the cause of this to be not greater amount of time devoted to geography classes, but the superior preparation of the German high school teachers of all subjects. They all know geography and they all teach geography. Where geographic control is a factor—in history, economics, biology, morals, or religion, it receives due recognition and exposition.

The high school teacher should be thoroughly trained in English. He should know good English. He should use good English. He should be so sensitive to the integrity of his mother tongue, that at all times he will require and secure good English from his pupils. Since English is the medium of instruction, the student learns English in every class—some kind of English. He is forming habits of speech. Now the poor English of the class room is of two chief sorts: 1st, The use of provincialisms, slang, faulty pronunciations, and bad grammar. These faults are due to defective early training or the poor language environment in which the student has lived. To correct them requires patient correction, the hearty cooperation of the student, the frequent repetition of the correct forms, and the presence of an improved language environment—books to read and conversation—which will gradually mold the thought and expression of the student. 2d, The use of constructions that reveal a want of orderly thinking. The defect here is not primarily in the language but in the thought—in the subject matter—and the teacher who neglects this, is a poor teacher of his subject. Too often we are willing when dealing with indolent, backward or timid pupils to accept any sort of evidence that a student sees a point. We forget that the effort to state a thought clearly is usually the surest means of clarifying the thought. Coherence and unity are essential qualities not of our English but of our thinking. Energy as a quality of style, merely reflects the vigor of our intellectual life.

It is equally difficult to establish a minimum of professional preparation. In what follows I shall endeavor to point out some of the fields in which such preparation should be made.

1. The high school teacher should have something of a philosophy of education. He should have a clear conception of the function of the school in the modern state—its purpose and its justification. He must see that its function is to fit young people to live completely in civilized society as it is, or rather as it ought to be. For society creates the school for its own reformation and puts into it what it desires in the life of the state. The teacher therefore must cherish a rational social ideal that shall be the norm by which his work is guided. He must see the relation of the school to other institutions that are educative in character—to home and shop, and church—and determine what share of the physical, vocational, moral, and cultural education of the child belongs to the school.

2. The high school teacher should have a working theory of educational values. He should know what particular studies and disciplines are really for—what should be their outcome in ideals, habits, knowledge, skill, and character. Not only the curriculum in its larger lines, but his selection of material, his mode of presentation, every detail of teaching must be largely determined by this knowledge.

3. The high school teacher should know human nature, especially the nature of adolescents, their tendencies, their aptitudes, their strong social instincts, their pride, their sensitiveness, their interests and ambitions. He should know the psychological laws that govern all learning and hence all rational teaching—the laws of sense-perception, of memory, of imagination, the laws of habit-formation and assimilation of knowledge.

4. The teacher should know also the physiological laws that condition all mental activity. The laws of fatigue are as important as the

laws of appreciation. He must be an expert in school hygiene. He must know that mental vigor depends upon physical vigor. He must know what good school conditions are, and possess a conscience that will not rest until they are secured.

5. The teacher should know a good deal of that body of educational doctrine—principles, maxims, methods, and ideals that has been accumulated through centuries of experience, and that men are now sifting, rationalizing, and restating in the light of modern psychology.

6. Some studies in the history of education are to be included in the preparation of the teacher. Such studies reveal to us the ideals, the enthusiasm, the self-sacrifice of great teachers and are further useful in showing us how our schools come to be as they are. In any institution whose continuous life spans the centuries, old forms persist long after the conditions that gave rise to them have past away. Much of the secondary school is traditional. Its curriculum, its methods of instruction, its maxims, its ideals are largely a heritage from an earlier state of society and are seriously discredited by modern thinkers and writers. The champions of the old order have discovered and invented many reasons for retaining these old features of our education, reasons that are very different from the causes that actually established them. Unless the teacher has enough knowledge and insight to separate the traditional from the rational in education, to set up aims in harmony with modern conditions and needs, it can hardly be said that he teaches; he merely drifts.

7. The high school teacher should be informed upon the various questions involved in school management.

The kind of incentives used to secure order, regular attendance and diligence in studies are sure to affect the character of the student. So also must the dominant spirit of the school, the attitude of studies toward the teachers, and toward their work, their loyalty, their love of excellence. Yet all these things wait upon the tact, the skill, and sincerity of the teacher. Every teacher, whether he wishes it or not, is shaping the character of his students. At his hands they are sure to receive some sort of ethical training, just as they receive some sort of training in speech. The quality of this training is determined chiefly by the spirit, the method, the vigilance and the wisdom with which the school is governed.

Similarly the high school teacher needs to be informed in certain special questions of high school management, athletics, literary societies, debating and dramatic clubs, musical organizations, and other features of the social life of the high school. He should be qualified to direct some of these activities with expert skill. This involves an element of preparation for teaching often overlooked as quite secondary and inconsequential, that is really a vital factor in the efficiency of the teacher. I refer to personal skill in what are sometimes called the school arts; viz. speaking, reading, singing, writing, drawing, and other forms of expression. The teacher may be a man of great learning, yet if in the writing of his blackboard outlines he is careless and unsystematic, his class may make small progress in orderly thinking. I know a teacher of German who has attended some of our best schools who has been a fellow in German in one of our best universities, who studied two years at Berlin and Heidelberg, yet whose pronunciation is so slovenly and indistinct, that his pupils fail to get any considerable benefit from the admirable oral method that he employs. I say admirable method—admirable indeed in its conception and even in the planning of daily details but miserable and inefficient because of this want of personal skill. There are teachers of science and other branches who have never learned to see and represent objects in terms of line and shade, and perspective, and who fall far short of the finest service, because of their poverty of

resources when attempting to express any idea of material forms. There are teachers of literature who cannot read dignified poetry; they are utterly unable to produce what Carson calls the choral atmosphere that invests and illumines the thought of a great poem as truly as the light in Corot's paintings lends a celestial glory to all the features of the landscape.

Many an ambitious girl, straining to make Phi Beta Kappa and realizing that excellence in class room work is the price to be paid for the coveted key, is giving her days and nights to her books; when more social life, more attention to the literary society, the dramatic association, the choral club, or art club would make her vastly more efficient in leading and inspiring boys and girls.

8. In addition to this theoretical knowledge of the art of teaching, there should be training under a competent supervisor, who by definite, sympathetic, constructive criticism shall establish in the young teacher correct standards and habits of teaching.

In nearly all of the elements of the teacher's art habits are pretty sure to be formed early. Right theory does not insure right practice. Where want of skill and bad method lead to manifest failure, the teacher will discover and correct many mistakes. But where method is inferior rather than bad and *fair* results are obtained, the training teacher with his wide knowledge of the teaching art is needed. Training under competent close supervision is the best guarantee of right standards and good habits in teaching.

Next to such training it is important that the young teacher receive his education under good teachers, for teaching like all other arts is learned largely by imitation. It is important that all the methods of these teachers are suitable for the high school; else we shall continue to find the research method in history among high school freshmen, and formal scientific lectures to boys in knickerbockers and girls in braids.

The remark is often heard that high school teachers are not interested in the general problems of education, that they subscribe for few teachers' journals and read little of the literature of their profession, that they do not attend teachers' institutes, or the state association, or take the active part in the county teachers' meetings to which their prominence, their education, and their salary entitle them. Whatever of truth there is in this statement is due to the fact that high school teachers too often isolate themselves from the elementary school and its interests. They are accused of conducting themselves like a superior caste. Nothing but harm can come from this separation. The failure of many a high school freshman is due to the abrupt change that marks the entrance to the high school. He meets new subjects, a new organization, new methods of assignment and study, a new type of teacher often quite inferior to the old in sympathy, experience, and professional insight. We discovered some time ago that some of the so-called elementary studies—Grammar, Arithmetic, Geography, and American History should be continued in the high school, and also that the elements of the sciences should be taught in the grades. Superintendents have learned that the best teachers for the ninth grade and often beyond are scholarly and able teachers who have gained experience in the elementary grades. They understand children, they know how children are taught in the grades and what they ought to know. I take it that all high school teachers need something of this knowledge and of this interest, and any system of professional training for high school teachers should include in its scope some first hand acquaintance with the problems and methods of the elementary school. The common school is one institution established to carry out a great national purpose. While the high school and the elementary school are somewhat different in studies and method, they are not diverse. Their common aims, rela-

tions, duties, problems, far outweigh the elements of difference. But the life of the child is continuous from infancy to maturity and the fact that there are differences in studies, methods, and organization makes it all the more necessary that each should know intimately the other.

The question proposed for this discussion has not yet been answered in this paper. The Committee of Ten nearly twenty years ago proposed the simple rule that each type of school should demand of its teachers the academic preparation required for graduation from the next higher. Thus elementary teachers must be high school graduates, high school teachers must be college graduates, college teachers must have completed a course for the doctorate. But if we ask who shall teach in the graduate school of the university the reply is—such of its own graduates as have through private study and research arrived at unquestioned eminence of scholarship.

May this principle be applied lower down? Are doctors from the graduate school the only people capable of independent study? We know that in all ages of culture many of our greatest scholars, teachers and men in the professions have owed little to the direct ministration of the school. There have been Lincolns greater than any law school. There are Franklins and Faradays and Edisons innocent of degrees, who after they have blazed out new paths of science may say with becoming modesty, Who is to confer the doctorate upon me? There are rugged men in every walk of life who have carved out their own path to leadership and whose title to manhood is not a patent from the schools.

There is a good deal of superstition in the deference paid to degrees. A degree is not a sacrament. It is not the outward and visible sign of an invisible and inward spiritual grace. We need to keep in mind a few fundamental truths in regard to education. Education is through self-activity. We are educated by what we do for ourselves and not by what others do for us. Scholarship and culture always come—not through listening to lectures in the classroom—but from diligent private study. All that college life can afford to any one is leisure, opportunity, and possibly inspiration and intelligent direction. There are many men and women who never attend college, whose thirst for knowledge, whose intellectual vigor and indomitable industry have brought to them a finer truer scholarship and character than college life brings to the mass of its students. No school system is strong enough to reject the aid of this type of teachers. Hence while we may in our discussions estimate scholarship in terms of school years or college credits; while we may magnify the work of professional preparation done by the normal school, or teachers college, or school of education, we must not assume that the only road to efficient high school teaching lies through these institutions. Nor should any standard be adopted for the public high schools that will not provide a comprehensive system of examination through which all competent teachers, may legally qualify for high school work.

Is the minimum that we are to define to be established by legislation? Is it to be a determining factor in the accrediting of high schools? Is it to be merely a counsel of perfection which we are to recommend to school boards, as we recommend Packards to our friends who are about to buy automobiles? If we are seeking a practical standard, we should remember that out of the 479 high schools listed in the last published report of the Superintendent of Public Instruction, 257 contain fewer than fifty students, and that in the majority of these smaller communities, the tax rate is already up to the limit. A higher standard of preparation means a longer term of preparation—increased expense of preparation and a diversion of young people to other occupations unless the salaries are raised. Salaries can be raised only by increasing the

revenues, or by cutting the salaries of elementary teachers. The high school is already the favored child of the public school system. The teachers of six per cent of all the children draw fourteen per cent of all the salaries.

A conviction that our high schools are not well taught, and that more money must be had to improve the teaching may prove a strong factor in securing a better system of school revenue, the first need in the improvement of schools of Illinois.

To secure the minimum preparation along the lines proposed in this paper I would suggest in terms of University Credits.

Professional Education.....	20 hours
Teaching.....	6 hours
English.....	16 hours
The major subjects other than English.....	20 hours
Allied minor subjects.....	20 hours
Reading, singing, drawing, etc.....	10 hours

91 hours

It would thus appear that three years' work beyond the accredited high school is no more than is needed for the rather modest requirements sketched in this paper.

The symposium was closed by Principal Hanna, who said:

The education of a teacher ought to be broad and deep. How broad? There ought to be *much of disciplinary education, much of culture study, much of special study, much of pedagogical training.* Now of course, the specific interpretation of "much" as used here may be different for a grade school teacher, for a high school teacher, for a college teacher, for a professional school teacher. But I would present this thesis and attempt to maintain it.

1. The *disciplinary* education ought to be as thorough for one as for another of these four classes of teachers. The mastery of the fundamental in mathematics, in English grammar, in such other elementary study as is for disciplinary training, ought to be strong and well developed for a teacher of the first grade or the ninth grade or the thirteenth grade, or the seventeenth grade—or to put it in another way, the teacher must be disciplined in the severities of mathematics, the control of suspended judgment that comes first of all from proper grammar training, and in the observation work that even elementary science gives. And this is just as true for one teacher as for another, for her who deals with six year olds, for him who deals with the adolescent, for him who deals with young manhood and womanhood in college classes, and for him who meets the problem of fitting doctors, lawyers, preachers, engineers, journalists, architects.

2. Now for the *culture* studies. Here is where most education for specific professions or vocations usually falls down. The specialist whose general education has been neglected, whose knowledge is confined chiefly to one field, or even as is sometimes the case to one fence corner, is not even well equipped for doing the work of his special vocation. This is particularly true of the teacher. If a teacher's training has been sound in the disciplinary fundamentals named above, that is in elementary language, mathematics and science, and if that same teacher's general culture has been meager, and then if that teacher has had professional training, the result is often pitiful. It is this neglect of the culture training, which is properly intermediate between the fundamental disciplinary training and the strict professional training, that produces the kind of teacher that excites the sneering attitude, or at

best the amused and tolerant contempt so often shown and oftener felt toward teachers. This neglect of the middle growth produces often an atrophied condition that marks off pedagogues from real people, that accounts for queerness in voice, manner, dress, bearing, and that seriously hampers even a naturally strong candidate for the leadership of youth. It is my belief that, if, and in so far as German schools are superior to American schools, (and without serious question they are superior in some particulars), that superiority is largely due to the greater average of culture training given to the teacher in Germany and demanded of him before he is allowed to teach. This general education in languages, sciences, history, mathematics, art, literature, music and the like has an effect which seemingly nothing else can give. We say that it broadens and enriches, that it is ripening and refining, we speak of it as giving tolerance and catholicity of attitude, we call it generous, ennobling, elevating. All of these are attempts to express what we all see and know and to some extent understand, but which we find it difficult to express or explain. But the difficulty in accounting for its effect does not make less important that effect.

It is not so important in itself that the teacher shall be able to reproduce Guyot's presentation of the five centers of civilization as these have been developed by geographical features of the earth's surface. It is not in itself a great thing that the teacher should labor with the Greek drama in the original. It is not vital to life that he should have tracked the logarithm to its hair. It is not necessary that he should be able to explain the relation between Rochelle, Buckingham, Richelieu and Anne of Austria. It does not in itself stand out as the one essential to salvation that he should have a mastery of musical notation, or of harmony in treatment of colors, or that he should be conversant with French or Italian, or should be able to enjoy the odes in Horace in the original or that he should be able to describe all plants from the hyssop that springeth on the wall to the stately palm or pine, or that he should have at his tongue's end the equivalence of all chemical elements, or that he should be able to recognize a glacial moraine as easily as a street car line. But these and similar studies, if properly pursued and up to a minimum will beget a certain maturity and sanity of mind, a certain mellowness and elasticity of intellectual temper, a certain pose and self control that can be gotten in no other way as well, and that are essential to the best results in the making of a strong, fine, capable teacher. *Baccalaureus artium*—what this stands for very roughly—is not to be pooh-poohed—nor laid upon the shelf too cavalierly. Those who wish to pose as very practical or thoroughly modern may, if they like, sneer at the culture studies. Some people do so who were themselves made strong and fine and capable by these same studies. But there is a breadth and a generosity given by them that cannot be plucked from the tree of knowledge in an afternoon, nor evolved from the hard experience of business or professional life, and that makes better teachers even of good ones and that saves some teachers from almost being poor ones. He who can bring forth from his treasure things new and old, moreover, is, in so far, better fitted for the delicate task of interesting the youthful mind.

The enormous value of this essential in training teachers is, as I have hinted, seen most conspicuously when the broad culture has been lacking, and when the severity of disciplinary studies is followed immediately by the narrow interest of special study or the attempt at adaptation in pedagogical training. It is like a wire edge on a dull tool. It is like the seed sown on stony ground, which forthwith sprung up and withered away because it had no deepness of earth.

3. Now what shall be said of special study? This certainly should be thorough and as extensive as may be. And it ought to be adapted—

really adapted to the future work of the teacher;—at least a considerable part of it should be. Every once in a while we find a lazy college professor who has passing through his hands each year many young men and women that are planning to teach in some special high school department and who, though charged with the guidance of these coming teachers, continues to give his routine courses year after year, including among these none at all that directly and specifically help the would-be teacher to a knowledge of how to present the work of the department to the high school pupils. This may seem to be reaching over into the field of pedagogical training, but a little reflection will make it clear that *that* is a distinct field and that the suggested work is for the purpose of actually mastering the content of a masterpiece or a branch of work from the point of view of the coming teacher. For example, Burke is almost a necessary classic in high schools. The student teacher should know how to present such a subject. Research work on this classic directed toward the presentation of it to the high school students would enable a teacher to apply the method of study to any classic. This is merely a demand for more scholarly preparation. Every college that is to train teachers ought to have a course or courses in the subject of courses of study for high schools, and in such a course thorough research work should be required—more thorough work than is usually required of college students.

4. *Pedagogical training.* There is a vast emptiness here. Most teachers that begin their teaching with high school work are almost utterly ignorant of the elementary laws of pedagogy. They know almost nothing about *how to teach*. They know almost nothing of the history of education. They are usually grossly ignorant of the simplest laws of psychology. Their knowledge of the child mind is grotesque in its meagerness and misconception. The old and foolish argument as to whether a teacher—at least a high school teacher—ought to have a college education or a normal school training may now in this more modern age of the world be permanently shelved. Let it be laid away with the fool debate about whether fire or water has wrought more damage in the world's history. Of course, and without any possibility of any debate, the proper demand in selecting a well equipped high school teacher, is that he or she shall have had *both* a college education and a normal school education, or what reasonably corresponds to each of these. Here is one place where unquestionably *the answer to which is both*.

To sum up then: We ought to demand, in seeking a new teacher for a modern public high school, *first*, that one shall have a broad training in the disciplinary fundamentals, mathematics, language, science—all elementary; *second*, that there shall have been good instruction in the cultural studies, such as a rightly conducted college course should give; *third*, that for teachers a certain amount of these studies should relate definitely and consciously to the actual high school class room work which that teacher is to take up later; *fourth*, that there shall be skillful pedagogical training required. In this latter part of the equipping of a teacher there is one quality or attitude of mind among others to be developed that is more important than any other in a teacher of youth and that is what one of my teachers calls "honesty or common-sense." A little reflection will convince us that these two terms are more nearly synonymous than at first sight appears.

The chances of a beginner for highest success are in the steady daily grind. The truth of this law has to be learned. It must be taught. There is no other thing—so a young teacher must come to feel,—there is no other thing so important as success in the class room. To achieve it the teacher must form sympathetic acquaintance with the individuals of his classes. Their welfare is his problem. This seems to be so

plain as to seem commonplace, but many young teachers and some older ones do not believe it. It is so vital that no egotism must be allowed to prevent the young teacher from recognizing the development of the pupil, and by this I mean not merely seeing it and being cognizant of it, but I mean giving the developing process recognition and treating with respect and fair play and encouragement the budding and growth of the youthful powers,—the being less anxious to preserve intact the intellectual dignity of the teacher's mature power of thinking and reasoning, and the being more keen to detect and respect the pupil's crude and even infantile powers of thinking and reasoning.

For the maintenance of this relation, which is both ideal and essential, it is plain that no difference can exist between teacher and pupil; differences will arise but no difference must be allowed to exist, to persist. If a difference continues it is due to the prejudice of the teacher—his unwillingness to be *honest* in meeting and dealing with the crudities of youth. Honesty and commonsense will settle all differences.

If a teacher has not learned honesty and commonsense in his pedagogical training, and if these qualities have not come to him by the substitute school of experience then what must he do? He must refer the case to the principal, whose only real advantage in handling the case, if he has any advantage at all (amid the numerous and striking disadvantages which he has from being a third party), I say the only advantage the principal has, if any, is that he has more honesty, more commonsense. And our present system very largely makes that demand on principal and superintendent, that they must supply those qualities in emergencies which in those same emergencies are found wanting in teachers under their care. And these are not necessarily inherent in the principal and necessarily impossible in the teacher. They are found to be lacking because in truth the teacher was never trained to be honest above all things in dealing with pupils.

It is the function of the training institution whether college, university, or normal school to train in this honesty, faithfulness and common sense. Please bear in mind that I am not insensible to the truth that even some principals and superintendents are sadly lacking in this quality. Some never can learn it. "Though thou bray a fool in a mortar with a pestle yet will not his foolishness depart from him." Here, if I may be so bold as to suggest it, is the especial function and opportunity of the college dean, who knows the student body and who has opportunity through a term of years to furnish the tone to train teachers in honesty and commonsense.

The other great quality needed in a teacher is loyalty. And that comes out in his first year in a school—the year in which he is a stranger—the year in which he makes many blunders, but the year in which, if he be the right stuff, he shows his loyalty in spite of not understanding. The question whether reserve power is his is settled when it is shown whether he can shoulder and rise above the temporary failures of his first year. Here is the gateway to advancement and promotion.

In making the demand for real pedagogical training of the right sort we are making a positive step forward for high school teaching and if the demand is enforced, it will, of course be necessary for the state to provide this training in such measure and under such arrangements of convenience that prospective high school teachers may get it easily and without too great a dislocation of their plans and conveniences.

Such an arrangement should be made after careful consideration of all the interests involved, and with the interest of the high schools and their pupils as chief among all matters to be considered. There can be no pulling for this or that or the other special interest or already

established institution. There are certificated high schools teachers. At present the normal growth and the vacancies caused chiefly by abandoning of the teacher's work call for new teachers every year. If a college education and pedagogical training were both demanded, this demand for the latter, i. e. for pedagogical training would tax the resources and conveniences, of every state institution of learning—the state university and the state normal schools. If there were a well equipped plant and faculty for a "school of education" at the university and if there were resources of similar character and rank at each of the five normal schools, there would be a demand for their combined product and a strain upon their resources that would tax them all to the extreme limit.

The present demand for new high school teachers in Illinois amounts probably to a thousand a year. To meet this according to such a standard as has been indicated here would call for a hundred to two hundred teacher graduates from each of these institutions.

To paraphrase the famous words of Admiral Schley, "there is room and work enough for all."

The whole subject of this symposium was turned over to a committee to consider in the light of this discussion and of the conditions and needs existing in the state and to report at the Conference for 1912, in the form of a resolution or a recommendation for legislation. This committee is composed as follows:

President L. C. Lord, Charleston; President Theodore Kemp, Illinois Wesleyan University, Bloomington; Superintendent H. B. Wilson, Decatur; Professor W. C. Bagley, University of Illinois; Principal W. R. Spurrier, Centralia.

The third general meeting of the Conference occurred Saturday morning, in Morrow Hall, with Superintendent W. W. Earnest of Champaign in the chair. The following report of the Committee on High School Libraries was made by the Chairman, Professor P. L. Windsor of the Library School:

The Committee has used the following sources of information relating to high school libraries in Illinois; first, Miss Katharine L. Sharp, *Illinois Libraries*, published by the University of Illinois, 1906-07; second, the report on the statistics of public, society, and school libraries of 5,000 volumes and over, by the United States Bureau of Education, 1908; third, the manuscript reports from affiliated schools on file in the office of the High School Visitor of the University of Illinois. So far as bare statistics go, these sources yield much, but only the following generalizations from the reports in the High School Visitor's office will be given here:

1. Information was secured concerning the libraries of 267 high schools and 26 private academies and schools; a total of 293 institutions. Of these 293, 66 reported libraries of 1,000 volumes or over, and, if the volumes are fresh and well selected and not too largely duplicates, these high schools may be considered fairly well equipped with books. That perhaps many are not being kept up to date by the addition of new books

is made evident by the fact that 107 of the 293 report no new books added to the library during that year.

2. Many of the high schools depend in part on the public libraries of their cities for library facilities, and properly so; but 97 high schools reported no public library of any sort available. Now we know that there are probably not more than 60 well established and aggressive public libraries in the state, so that many high schools that reported a public library available have, as a matter of fact, only a weak or struggling library to depend upon for aid. From both of these facts, it is clear that far too many of our high school pupils and teachers have access to utterly inadequate collections of books.

The mere size of a library is an unreliable index to its value and usefulness. At least four other questions have to be considered. *First, the sort of books in the library.* Are they by the best authors, in readable editions, and in sufficient number of copies for efficient class use? Does the library contain only the best fiction? In selecting books for purchase, does it use some of the excellent printed lists available, as for example, the ones in our own high school manual? Does it secure those books issued by the government and certain societies which can often be obtained without cost and which are so useful in the pupil's work? Does the library get rid of those books, however obtained, which have become useless in the work of the school? Should the library contain pedagogical books for teachers use? *Second, the sort of teacher or librarian in charge.* Has she adequate training for her special work? Does she get the most use possible out of the books? Does she guide the pupils in the best ways of using books and libraries? *Third, the relation of the high school library to the other libraries in the community.* Is co-operation between the high school library and these other libraries carried to the highest possible point? Is the high school library for many purposes practically a branch of the public library? *Fourth, the kind of quarters which are assigned to the library.* Generally these quarters are not conducive to the widest use of the library.

Questions like these and others relating to certain more general aspects of the pupils' reading habits; others concerning the direct relation of the high school library to the work of particular subjects, as for example, English or geography; and still others concerning the introduction of elementary training in library science into the curriculum, might well be the subject of further study by members of this conference to the end that our pupils may be trained in the daily use of more and better books. It is recommended therefore, that the Committee be enlarged to five members and continue, and that it make a further report at the next conference.

The chairman of the Conference Committee next reported on the reorganization of the general conference committee. This reorganization makes a larger and more representative committee which includes a smaller executive committee and the chairmen of all the permanent executive committees of the sections. The members of the executive committee are H. A. Hollister, Chairman, B. H. Bode, H. L. Rietz, W. C. Bagley, Supt. A. P. Johnson, and Supt W. W. Earnest.

The chairmen of the section committees are:

Administrative,.....C. P. Briggs
Agricultural,.....A. C. Norris

Biology,.....	T. W. Galloway
Classics,.....	C. E. Allen
Commercial,.....	J. C. Duncan
Domestic Science,.....	Helena M. Pincomb
English,.....	J. F. Hosie
Geography,.....	J. L. Rich
Manual Arts,.....	E. J. Lake
Mathematics,.....	E. B. Lytle
Modern Language,.....	O. P. Klopsch
Music,.....	Constance Barlow-Smith
Physical Sciences,.....	C. H. Elliott
Social Science,.....	Silas Echols

The chairman of the Committee on The Program of Studies reported progress, and recommended that the further investigation of standards and values involved in a readjustment of the entire program, including the elementary grades, be placed in the hands of Professor W. C. Bagley with power to select such aids in the work as might seem best to him. This recommendation was approved.

The Chairman next announced the speaker of the morning, Assistant Commissioner C. F. Wheelock, of Albany, New York, who gave the following address on The New York Plan of State Aid to High Schools and the Results:

"The New York State Plan for Aid to High Schools includes provisions for assistance:

- 1 By apportionments of money
- 2 By loans of books, pictures, lantern slides and scientific collections
- 3 By inspection
- 4 By examinations
- 5 By counsel and advice
- 6 By publications

"The effectiveness of the plan depends upon a thoroughly organized State Department of Education, endowed by the legislature and by the Constitution of the State with large powers, and loyally supported in the exercise of its functions.

"A brief description of the development and of the organization of the State Education Department is absolutely essential to an understanding of the way in which its plans for aiding secondary education are carried into effect.

"New York was the first state of the American Union to organize for aid to secondary and higher education. In 1784, at the very first session of the New York State Legislature after the close of the Revolutionary War, an act was passed creating the Regents of the University of the State of New York. The primary function of this body was to act as a board of trustees for the institution previously known as Kings College now Columbia University, but in 1787 the act creating the

Regents of the University was amended on the petition of the Regents themselves, and their functions were extended to cover the incorporation of colleges and academies throughout the state as well as the general supervision of such institutions after they were established. This petition of 1787 contains the following significant language:

"Your committee are of the opinion that liberal protection and encouragement ought to be given to academies for the instruction of youth in the languages and useful knowledge; these academies, though under the grade of colleges, are highly beneficial, but owing their establishment to private benevolences, labor under disadvantages which ought to be removed. Your committee also conceive that privileges may be granted to such academies, which will render them more respectable and be a strong incitement to emulation and diligence both in the teachers and the scholars."

By an act of May 5, 1786, the legislature provided for the speedy sale of unappropriated lands of the State in which the Commissioners of the Land Office were to cause one lot to be marked by the Surveyor General "Gospel and Schools" and one other lot "*for promoting literature.*" This marks the beginning of the so-called "literature fund," the income of which has since that time been controlled by the Regents of the University and has been used, together with other funds, in aid of secondary education.

At the time mentioned, the academies were the only institutions in the state for secondary education. These institutions have often been called "private academies," but in a large sense they were public. In fact, the charters of incorporation of each of them distinctly specify that the funds of the institution were to be held forever for "*public academic education.*" For the most part, they have given place to the public high schools; in fact, most of them have been merged into public high schools so that, to all intents and purposes, New York State has been contributing to public high school education since 1786.

By subsequent legislation there was created in the State a Department of Public Instruction, which was charged with the supervision of the common elementary schools. The line of demarkation between these two departments was not well marked and rivalry was the inevitable result, but they worked side by side for more than 50 years, sometimes in peace and harmony, sometimes in peace without harmony, and sometimes lacking both peace and harmony till 1904 when they were merged into the present Education Department. The rivalry of these two departments was not pleasant while it existed, but it resulted in the greater efficiency of each, and, as a result, the new department has inherited larger powers and more important functions than would have been possible had it not been for the efforts of each of the old departments to outdo the other during half a century of competition.

The act of 1904, supplemented by the act of 1910, organized a department of education without a parallel among American commonwealths. In fact, it is a miniature state having legislative, executive and judicial functions within the broad limits fixed by the Constitution and the statutes. The Board of Regents with its traditions of more than 100 years of honest efficient service is continued as the legislative body of the new department:

"SEC. 46. *Legislative power.* Subject and in conformity to the constitution and laws of the state, the Regents shall exercise legislative functions concerning the educational system of the state, determine its policies, and except as to the judicial functions of the commissioner of education establish rules for carrying into effect the laws and policies of the state, relating to education, and the powers, duties and trusts conferred or charged upon the university."

As the chief executive and administrative officer of the department,

the Commissioner of Education, who was drafted from this University for the purpose, exercises all the functions formerly exercised by the Secretary of the Board of Regents and the Superintendent of Public Instruction. In addition to this the Commissioner of Education is made a court of last resort in all cases arising under the education law.

In the organization of the working force of the Department, the Commissioner of Education has three assistants of equal rank, one for higher education, one for secondary education and one for elementary education. In addition to the State Library and the State Museum the work of the department is organized in 12 divisions, as follows:

- Administration Division
- Attendance Division
- Educational Extension
- Examinations Division
- History Division
- Inspections Division,
- Law Division
- Public Records,
- School Libraries
- Statistics Division
- Visual Instruction,
- Vocational Schools

The total permanent staff of the department includes approximately 300 persons. It is evident that with such an organization to administer it, any plan for aid to high schools means much more than it would mean without the organization to put it into effect. We will now consider, in detail, each of the five different ways in which New York strives to aid her high schools.

Direct apportionments of money are made to the high schools of New York State as follows:

1. An allotment of \$100 to each high school maintained irrespective of size or extent of course.
2. An apportionment for books and apparatus not exceeding \$268 plus \$2 for each teacher employed, in any one year to one institution, duplicating an equal amount raised from local sources for the same purpose.
3. For the tuition of nonresident academic students at the rate of \$20 per year for each student instructed.
4. On the basis of the attendance of academic students for the preceding year. The total apportionment under these four heads during the year closing July 31, 1911, was \$653,482.80.
5. For industrial education in accordance with the following provisions of the law:

"1. The commissioner of education in the annual apportionment of the state school moneys shall apportion therefrom to each city and union free school district the sum of five hundred dollars for each independently organized general industrial school, trade school, or a school of agriculture, mechanic arts and home making, maintained therein for thirty-eight weeks during the school year and employing one teacher whose work is devoted exclusively to such school, and having an enrollment of at least twenty-five pupils and maintaining a course of study approved by him.

2. The commissioner of education shall also make an additional apportionment to each city and union free school district of two hundred dollars for each additional teacher employed exclusively in such schools for thirty-eight weeks during the school year."

To be entitled to share in any of these apportionments a school must

have organized its secondary work, must have provided a satisfactory initial equipment, must have adopted a course of study approved by the State Department and must employ competent teachers to carry on the work. When the local school authorities think they have met the requirements, application is made for admission to the University and with its application presents a detailed statement regarding its building, its library, its equipment, its faculty and its course of study. After the application is received, an inspector visits the school when in session, carefully verifies the statements of the application and reports, in detail, expressly stating whether in his judgment the conditions for admission have been complied with. These conditions are

SEC. 27. General requirements for an academic department

a It must be in a union school.

b Approved academic instruction must be given for at least 175 days in each year.

c The school must give approved instruction in pre-academic grades; provide adequate equipment and teaching force, and, in schools of high school grade, must have at least two teachers whose time, so far as needed, is given to academic work.

d There must be in regular attendance at least five academic students who hold a preliminary certificate or its accepted equivalent.

e The school must furnish sufficient suitable apparatus and reference books relating to the subjects of study.

SEC. 28. Special requirements for the several grades of secondary schools

a A school of junior grade must maintain an approved one-year course of study that includes English, mathematics, and science, and does not exceed the minimum prescribed for a school of middle grade, and must have apparatus worth at least \$100 and a library worth not less than \$200.

b A school of middle grade must maintain an approved two-year course of study which includes that required for a school of junior grade and history and additional work in English and mathematics, but not exceeding the minimum prescribed for a school of senior grade. It must have apparatus worth at least \$150 and a library worth not less than \$300.

c A school of senior grade must maintain an approved three-year course of study which includes that required for a school of middle grade and additional work in history and English, and must have apparatus worth at least \$200 and a library worth not less than \$400.

d A school of high school grade must maintain an approved four-year course of study which includes all required for a school of senior grade and additional work in English, and must have apparatus worth at least \$250 and a library worth not less than \$500.

e Schools of senior and high school grade must provide sufficient laboratory facilities suitable for individual experimentation, and in all of the grades there must be a minimum of 18 recitation periods in each school week.

SEC. 29. English requirements. To maintain approved standing and the right to share in grants from the academic fund, all secondary schools in the University must require each class, throughout its course, to have in each school week at least three recitations in English, which shall include the study of the English language and literature and practice in English composition.

SEC. 30. Academy changed to academic department. An academy adopted or leased as the academic department of a union school may retain its membership in the University if the board of education request it and notify the Regents in writing that they intend to maintain at least the standards required for admission."

If the report is favorable, the application is presented to the Regents of the University at the next meeting of the board and they pass final judgment on the question of admission. As soon as the school is admitted, it becomes regularly entitled to receive the apportionments. Annual inspection is made and an annual report is required to determine whether the school continues to deserve its place on the list of approved institutions. If such a school, subsequent to its admission, desires to add to its equipment of books and apparatus, a detailed list of articles that it proposes to purchase is submitted to the Inspections Division of the State Department for approval. If the list is approved the state pays one-half the bill but not to exceed \$268 plus \$2 for each teacher in the school during the year when the application is made.

As each school in New York State is the school of a particular school district, and as the district may or may not maintain an academic department, it results that there are many children in the state who reside in districts not offering high school facilities. The state comes to the aid of such children by paying their tuition fees in any high school elected by the student, to the extent of \$20 a year. If the district in which the student resides maintains a one-year high school, he must complete that year in his home school before he is entitled to free tuition elsewhere at the expense of the state. Like arrangements are made for those who live in districts maintaining two-year schools or three-year schools. Under the law any school may refuse to receive these non-resident pupils, but in practice schools are usually anxious to get such students. The \$20 fee received for their instruction is in most cases less than the average cost to the district of high school instruction, but when an academic department is established and in operation, the additional cost of a few non-resident students is inconsiderable.

I have now enumerated all the various apportionments of money made to high schools as such, but there is another provision by virtue of which each public school, elementary or secondary, receives an allowance from state funds of \$100 for each teacher employed. The establishment of a high school department will, of course, increase the number of its teachers and consequently increase the amount of state aid by \$100 for each such teacher.

Loans.

Through the State Library, which has been mentioned as one of the divisions of the New York State Education Department, traveling libraries covering a wide range of reading will be loaned to any school in the state. This is not to take the place of the school library but to supplement it. These books may be used not only by the students in the school, but by the people of the district as well, and are often a valuable aid through the general interest in things educational that may be created by their judicious use.

Reference libraries in history, literature and natural science will be made upon request and books for use in debates will be supplied. Twenty-five volumes or less will be sent to a school without expense; for each additional 25 books a fee of 50 cents will be charged. The State pays all transportation charges. Applications should be signed in the case of city or village school systems by the superintendent of schools, of union schools and academies by the principal, of district schools by the presiding trustee.

The value of this form of aid is apparent when we remember that the resources of the great state library may be drawn upon to fill orders of this character, and when we further remember that the services of the best expert librarians are at the disposal of the schools in making the selections. The staff of the State Library moreover are at the disposal of any teacher in the state who may make a written request for information upon any particular topic or for any information concerning

the literature of any particular topic, including in this articles of current periodicals.

State Museum

The State Museum, which has also been mentioned as one of the divisions of the Education Department, has a staff of experts in geology, paleontology, botany, entomology and American archeology. The services of this staff and the resources of the museum are always available to high schools seeking information, and loan collections of minerals and fossils may be sent out in a manner similar to that employed by the loan libraries.

Visual Instruction

The Division of Visual Instruction of the State Department loans to the high schools large wall pictures and smaller hand photographs and lantern slides. The large wall pictures are reproductions of famous works of art or photographs of the world's most famous architectural works. The smaller pictures may cover the same fields and in addition scenes of interest in the study of literature. The collections of lantern slides cover art, literature, history and science. The fees to be paid by the schools for all of these loan collections are not quite sufficient to pay on the average the cost of transportation, so that the smallest and weakest high school in the state may have the use and the benefit of the best that the world affords in each of the fields mentioned.

So far I have spoken only of the material aid that the State of New York affords its high schools in the way of direct appropriations or loans. This does not by any means include all that the state is doing to promote secondary education. In fact, the most important aid that the state brings to its schools is not in material form, can not be estimated in dollars and cents, nor can it be exactly described in words.

I have already mentioned the Inspection Division as a part of the Education Department. The term "inspection" is an unhappy one for it does not properly express the function of this division, for the Inspection Division is not a detective bureau in any sense of the word. The Division is organized with a chief and 13 inspectors. Appointments to the staff are made with the greatest care through the State Civil Service Commission, which has, for the purpose, dispensed with the written examination and which makes up an eligible list after careful investigation into the merits of each candidate. Each of the inspectors is chosen with reference to his general education and experience and with special reference to his scholarship in some one particular field; thus we have an inspector in history, in biologic science, in physical science, in mathematics, in English, in drawing, in modern languages, and in the classics. These men spend the major part of their time in actually visiting the high schools of the state, not for the purpose of acting as spies upon the teachers and reporting their deficiencies, but rather for the purpose of carrying to the teachers the best available advice concerning every phase of high school work. They see the best as well as the poorest. It would be indeed a very weak man who, under these circumstances, could not bring something of value to the assistance of almost any teacher, and the value of the aid which a strong man can bring under these conditions is inestimable. I am happy to report that they are always welcome upon their visits and that they have established between themselves and the teachers of the state the kind of spirit that ought to exist between a superintendent and his teachers. Of course, it becomes their duty from time to time to report delinquents; to see to it that the physical equipment of the school is kept up to standard; that the school building is suitable in all respects, including the lighting, heating and ventilating. Occasionally it becomes

the duty of one of these inspectors to report to the board of education that some of the teachers of the schools are not doing the kind of work that is expected of them, but the larger portion of their efforts are expended in bringing to the teachers helpful suggestions and helpful criticisms, in indicating ways and means of improvement.

What has been said above applies with special force in the teaching of agriculture and other industrial subjects. One expert is employed to give his entire time to promoting the study of agriculture in the schools, and the Division of Vocational Schools is devoted entirely to aiding in all industrial lines.

Examinations

I come now to what is the most extensively known and the least understood phase of the New York State high school system. I refer to the system of state examination known everywhere as "Regents Examinations." These examinations had their origin about 50 years ago in an effort to distribute the income of the "literature fund" equitably. This fund was distributed on the basis of attendance of academic students, but the term "academic students" had no fixed meaning. Standards for admission to the academic or high school department varied extensively and examinations in arithmetic, English grammar, geography and spelling were instituted solely for the purpose of determining the attendance of what students should be counted as forming a basis for the distribution of the fund. Since these preliminary examinations were organized and in operation, teachers found in them valuable aid, and requests were numerous for the extension of the subjects to cover high school subjects. Subject after subject was added until all the subjects in the high school curriculum were included. I wish to call especial attention to the fact that the extension of the system has been brought about through the requests of the high school and not by edict of the Board of Regents. In fact, the Regents have generally resisted extension and only consented to it when the demand seemed universal. The system has been a growing and developing one. Improvements in methods have been frequent, but it would take too long to give a detailed account of all the changes. At the present time these examinations are under the general direction of a State Examination Board, which is sort of an honorary body elected by the Regents for this purpose, representing an equal portion of the colleges, the schools and the department. This board formulates the fundamental principles and establishes, with the approval of the Regents, the general regulations relating to the examinations in all respects. This state board also selects the committees that prepare the question papers, each committee being composed of three persons—a college professor, one a high school teacher and one a representative of the Department. One member of each committee is regularly changed each year. The question papers prepared by these committees are subject to final revision by a committee of the State Examinations Board appointed for that purpose. As will be perceived, the present scheme is a co-operative one, in which the colleges of the state, the high schools of the state and the Department are jointly interested. The scheme is a flexible one, responsive to the demands of the colleges, the schools or the public, and there is a growing tendency to make its requirements less formal and more human. Formerly every paper written by a student was read at the Department before it was accepted. At present papers in a large list of subjects may be accepted without reading, at the discretion of the Commissioner of Education. In fact, we are beginning to view the entire examination field from a new angle. From the new viewpoint, the function of the State Department is to set the standards, to furnish proper ideals, to suggest proper methods, and the function of the school is to realize these ideals in their teaching and

to determine, in the case of an individual student, whether or not the standard has been attained, with only so much interference from the department as may be necessary to produce a reasonable degree of uniformity in the application of the regulations. It may seem strange to some that I have classed examinations among the aids to high schools, but all doubts upon the propriety of the classification would be removed in the mind of anyone who could see our correspondence. He would learn from this correspondence that the schools consider the examinations a positive aid—the most influential that the Department exercises. The scheme is, of course, subject to abuses, but in the main its tendency has been uplifting.

THE ADMINISTRATIVE SECTION

This section was presided over by Principal C. P. Briggs of Rockford. The Secretary was Superintendent K. D. Waldo of Sycamore.

The first subject discussed was "A Basis for Promotion of Teachers and for Increasing their Salaries." The discussion was led by Superintendent L. H. Griffith of Danville. He spoke in part as follows:

"Within the past decade much has been said and written concerning teachers' salaries and the relations of their preparation to their salaries. The discussion has thus far been confined too closely to educational conventions, educational reports and educational periodicals. Too much of the results of the agitation has ended in reducing the reasoning to the form of a circle and thereby reaching no new conclusions or results. It is fruitless to waste time asserting that there is no justification in paying higher salaries to teachers so long as the service is so unsatisfactory and unstable and then hearing the answer that teachers are not paid enough to justify better preparation or better service. Of course this discussion has been productive of some good in that it has given some publicity to the merits of the question; and it seems to me that about the most effectual effort possible is that which gives publicity to the whole affair. Make the public copartners in all that pertains to the life of the school and the support for financial expenditure will gain strength.

"The tendency everywhere is to broaden the function of the school. A new goal is being established. As in the past in nearly all reforms and advances made in the establishment of new purposes and aims in education, the institutions of higher learning are now taking the lead. But it is evident that the secondary and elementary schools are falling into line in the endeavor to bring the work of the schools into harmony and cooperation with the vocational requirements of society. The public is manifesting a fine interest in the hope that education will become adapted to the betterment of all classes and not limit its advantages to the few. The call for an education for efficient citizenship is clear and commanding. It is true that this call is very general in its character and expresses many conflicting opinions. The goal is not clearly fixed. But the methods or plans by which a broader education is to be financed and operated are in deeper difficulty than is the aim itself.

"There is a wide-spread knowledge of and sympathy for the vitalized and concrete education, but the third step involving execution has not yet been taken by the powers that appropriate funds and levy taxes. And that step is just what is needed for the successful operation of a definite scheme for promotion of teachers and raising their salaries. We want money enough to enable us to go into the open market with other lines of big business and other professions and bid successfully for first-class talent. The aching void in the teaching corps is caused by exodus for a better paying business. There are strong indications that education is entering the broad and splendid field of life as it is lived. School administration is on the eve of being accepted as one of the greatest in the great lines of American business. And when the full importance of this business is known to the American people, I have faith that it will be carried forward with the same splendid results that mark the advancement of the other achievements of the age."

The speaker then presented a "Tentative Scheme for Measurement of Teaching Efficiency", which has been worked out by Dr. E. C. Elliott of the University of Wisconsin.

The "Tentative Scheme" was presented informally about as follows:

1st. "General propositions."

- a. "The ordinary practices of the day" discussed as related to "effective organization, administration and supervision of the public schools."
- b. Quantitative and qualitative measurements as affecting the method of choosing, promoting and assigning teachers.

2d. Teaching Efficiency—

- I. Physical Efficiency.
- II. Moral—Native Efficiency.
- III. Administrative Efficiency.
- IV. Dynamic Efficiency.
- V. Projected Efficiency.
- VI. Achieved Efficiency.
- VII. Social Efficiency.

Under "ordinary practices of the day" undue weight is given to some of the factors under "I. Physical Efficiency", and also to the factor "b. academic education" under "IV. Dynamic Efficiency."

Mr. Griffith, in discussing this scheme, said:

"The more I study the scheme the more deeply am I convinced of its virtue. It is a big idea, capable of expansion in many ways. Its demands are for more definite organization of the school system through school board, superintendency and supervisory functions as well as in the teaching force. It calls into question more strongly the "ordinary practices of the day" as regards the choosing of teachers, promoting and fixing their salaries, than it does the efficiency of the teachers themselves.

"In advocating the adoption of this scheme or a similar one, it is with the conviction that in its general operation a higher standard for teachers would be fixed, that ability would receive its just reward, that a few brilliant colors would no longer cover the deficiencies of incompetency, that favoritism, nepotism, official pull or prejudice would no longer obstruct the way of an establishment of an able profession. What we advocate is a fixed code, placing broad, professional fitness on a

pedestal—at the top and on an equality with service rendered in any other vocation in the land.

"In approaching this scheme, we are confronted by two serious conditions: 1st, lack of funds for meeting teachers' salaries; 2d, the indefinite organization of the school system failing to place responsibility as regards appropriating of funds; levying of taxes, employment, assignment and promotion of teachers."

A lively discussion followed. The consensus of opinion seemed to favor a more systematic plan for grading and promoting teachers.

State Superintendent Francis G. Blair followed with a discussion of "Desirable standards in School Reports and Statistics." He made a strong plea for greater uniformity, urging the necessity of uniform blanks to be sent out from the Department at Springfield to the district clerks. He spoke of the forward step already made by the appointment of an efficient statistical clerk in the State Department whose whole time is to be given to the compilation of the educational statistics of the state.

From the discussion which followed came a motion by Principal M. T. VanCleve of Eldorado asking that the State Superintendent furnish uniform blanks to all local officials. This motion was carried.

Superintendent A. S. Anderson of Litchfield next led in the discussion of the subject "The Need of Uniformity in College Entrance Requirements." The substance of his argument follows:

"The college has done much to raise the high school to a high standard of efficiency. Exerting its influence, indirectly, through the college trained teacher in the high school, and more positively through the method of college inspection now in vogue, the college has made the high school an effective educational agent having a high, and at least one, definite purpose.

"Without real authority, but acting through friendly suggestion, and offering the high school official recognition as a reward, the college has brought system and order in courses of study where confusion and chaos has formerly prevailed. It has determined the nature and scope of instruction and the most effective methods of teaching. It has enlightened and crystallized public sentiment in communities for more sanitary and larger buildings. It has demanded and secured more adequate equipment so that courses of instruction might be carried out more efficiently. And it has with a gentle insistence, demanded more efficient teachers, determined their number, and kind, and decided as to their scholarship.

"In doing these things, the college has performed an incalculable service to secondary education. And no one can justly charge the college with any but the purest motives, for the college actuated by high ideals of culture, has constantly had in view the responsible function it has to perform for higher education. Solving its own problem, serving its own best interest, and concerned with its own function, the college

has generally been slow to understand and to recognize that the high school owes an important duty to the community as well as to itself; and that the high school should always be an institution that will in a goodly measure furnish those things that are most essential to the needs of the community.

The community with real authority, and taxing itself to support and maintain the high school has insisted on modifications of the course of study that has enabled this local institution to serve in at least a greater degree some of the needs peculiar to the community.

Consequently high schools, generally, attempt to arrange courses of study that conform to two requirements; that imposed by the college on the one hand, and that imposed by the community on the other. Courses of study to fit these dual requirements are never identical and only partly overlap.

The attempt to administer courses of study that conform to two requirements is the most serious weakness of the whole system of high school administration. This weakness is recognized in the fact that very few boys and girls know exactly at the beginning of their high school course what they will do after graduation.

Obviously, the simplest remedy for such a defect in the administration of courses of study that attempt to conform to two requirements, is to make these requirements as nearly identical as possible. This a great number of colleges of the middle west are attempting to do. There are three plans of entrance which indicate consistent efforts on the part of the colleges to recognize the local means of committees. The plan that is most common and most familiar is that adopted by the University of Illinois, and is a type of a great number of colleges, particularly west of the Alleghenies.

This is its plan of entrance requirements: first, fixes a minimum number of absolutely required subjects for every student, and further requires only those subjects that are technically necessary for the advanced work in the department that the student expects to enter. Second, this plan recognizes a liberal list of subjects from which a student may elect what appeals to his dominant interest, or what seems to suit his needs. Where the high school is disposed to place a great deal of emphasis on the absolutely required subjects, this plan, if the list of electives is long, permits of enough flexibility to work no hardship to the boy and the girl who decide late to enter college nor to the boy and the girl who complete their school education with the high school.

The second plan leaves the list of absolutely required subjects somewhat as in the first plan; recognizes a more limited list of electives and introduces a third element, which allows a more or less number of units as a margin, over which the high school has absolute control, thus leaving the high school free to arrange for narrowly vocational courses or such other courses as may be demanded to satisfy local desires or needs, however these may vary in different communities.

The University of Wisconsin has adopted this type of entrance. Harvard College in its new plan, while still insisting that all students pass a written examination for entrance, still allows a concession that is in effect a recognition of the principle of marginal units. Likewise the marginal unit feature is an important part of the entrance requirements for Chicago University, whose new plan of entrance is so radically different from any other plan that it may best be described under a third plan of which so far this institution is the only type.

Here the speaker gave an extended description of the entrance plan of the University of Chicago, a plan which has al-

ready been given a wide publicity, and so need not be repeated here.)

"To the college is due the credit of the modern spirit of investigation. No institution is more eager to take questions and place them under the most careful scrutiny. Accepting no facts as a basis for a conclusion until they have undergone the most complete analysis, it accepts no conclusions unless supported by evidences based on acceptable fact.

"Yet there are college institutions which have, unconsciously, perhaps, but nevertheless persistently, blocked the way for the solution by any acceptable and comprehensive method of these questions that are vital in determining the greater usefulness of the college itself and particularly those questions that concern the dissemination of education as widely as possible.

"For example, relaxing the rigor of the older requirements of Greek and Latin was followed by a great influx of students into secondary schools and colleges. Education was not made easier, but it was made more popular.

"Relaxing the rigor of the absolute requirements, now in vogue might have the effect of making higher education appeal to a yet larger class of men and women, many of whom now look upon much of higher education as a waste of time. These might be attracted to higher scholastic pursuits could they but follow their own bent.

"So long as the college maintains an unbending attitude, so long will the high school and college fail to attract this larger class, and thus make possible the complete study of the many questions involved in democratic education.

"Not until the problems relating to college entrance are solved, and until these problems are solved by the acid test of experience, will there be any prospect of any rational uniformity of entrance requirements. As the matter now stands, what is the best system of college entrance requirements is nothing more than a matter of opinion, and this opinion varies according to the age, traditions, and source of support of the institution advancing it.

"So long as any institution has the courage to lay aside tradition, and pattern entrance requirements after an entirely new and original plan that permits of adequate investigation of mooted questions, these questions promise to be solved, and solved by methods that have the sanction of the highest authorities. When these questions are solved by adequate and acceptable methods, then we will know the most rational plan of entrance requirements.

"Meanwhile, secondary school men should insist that rigid entrance requirements must have valid reasons, based on facts to justify their existence. Rigid entrance requirements based on traditional reasons that can not endure the searchlight of investigation have no longer any legitimate defense. The burden of proof must be to justify any arbitrary requirement whatever.

"When that time comes, as it will even east of the Alleghanies, then we will have reached a stage of advancement as regards college entrance, that will be in keeping with the progressive character of the present age."

Next followed a discussion on "State Aid to High Schools." This was introduced by Principal M. T. VanCleve, of Eldorado, who spoke as follows:

"During the pioneer days of our educational institutions in Illinois the university was not here, the colleges were little more than grammar schools, and the high school was not a part of any school system. The young fellow who received a common school education picked it up here and there, partly in a rudely constructed one room school conducted by a man who could dispense knowledge to the Single Rule of Three; then the boy went at his work along the great highway of experience.

"The fellow who desired to pursue higher educational or professional lines of research must go east to the Atlantic Seaboard and occasionally across the ocean. It was the boast of the parent who could send his son or daughter *away* to school, and the *dread* of him who *should* do so. In either case the parent was fortunate or unfortunate in proportion to how well the son or daughter used the time and became 'wise' or 'otherwise.'

"This necessity of going away to school was an expensive undertaking, and almost equal to joining the army and going to war, in point of leaving home, home ties, meeting new experiences and new environments in a strange land among a strange people. The college was away in the distance and few could enter therein.

"Now, instead of sending the children away to school, the proposition is to bring the college to the children. The high school is frequently styled the people's college, and not inaptly so, since it provides secondary training equal and in many instances, superior to that of the Eastern Colleges of former days.

"If the high schools are to serve as the people's colleges, it behooves the State to put them in the urban and rural districts just as fast as conditions are favorable for it to do so.

"It has been well said that the rank a nation holds in the scale of civilization is measured by the intelligence of its people, and that the progress of a nation is marked by the number and quality of its educational institutions. Now there is not a rural district in the state of Illinois where a child of ordinary intelligence, devotion and ambition can not procure a primary or grammar school education. This may be considered as a wonderful progress for a half century, but it is not to stop here. In these days of sharp competition, industrial, social and scientific research, it is not sufficient to give to this and future generations the advantages of a primary education and nothing more. The secondary School must be put within the reach of all. It is coming, slow, but sure.

"The system of free school education has passed the experimental stage, and it is no longer a question of who shall educate the youth of the land, but to what extent? How? And where?

"Proposition: Shall general taxation be extended to the support of Secondary Schools?

"I am quite sure that when this question submitted to the people (including the women) for a vote upon it, they would return an overwhelming majority in favor of it. Assuming this to be the case, where are these institutions to be established? One in each senatorial district? One in each county? Or one in each township? I would say, one in each township where the population and primary school advancement are sufficient to warrant its success or to demand its establishment.

"I do not believe every township is ready to establish a high school but I do believe every county without a free secondary school is failing and falling short of its duty and opportunity. Yet, it is a lamentable fact, that there are several counties in the state without an accredited high school.

"Now comes the vital question: How establish free educational institutions within the reach of the masses? After some thought and re-

search on this question, I submit a few things that await our earnest consideration.

"On account of the very unequal distribution of wealth, an attempt to require all to be supported by a local rate taxation, would put a great burden on one community while it would not be so on a more wealthy neighborhood. Just now, by a direct taxation system, such as we have in this state, the wealth behind the child to be educated is greatest where the total wealth is greatest, and least where the total wealth is least.

"A special levied taxation in each district would impose a heavy burden on one district and a very light one on another where there is more wealth. This causes slow and difficult progress, and often causes the state to lose the valuable services of many talented lads because of the failure to provide educational advantages within their reach.

"These burdens of the weak in some communities may be lessened by a general state tax on a wealth basis, and a distribution on a population basis or a combination basis. I do not say this should be the chief support of the secondary schools of the state, but merely suggests a plan to help the weak and not overburden the strong.

"No form of taxation or means of raising funds for school purposes will be an entire success unless there is a means for wisely distributing them. This distribution question is a most serious one. Few states, if any at all, have a plan that seems to be ideal. There is either great waste or a lack of proper use of funds, or both.

"This indicates the need of an Educational Commission to regulate and distribute school funds. Eventually we will need to abandon the population basis and provide a more equitable one. Some have suggested the total school population plan for making the distribution, while others have proposed the average attendance plan, since it would encourage keeping pupils in school, have the effect of compensation, and open up a chance for progress. These would work a hardship on the small school and the sparsely populated districts, since it would cause the need of special local taxation, which is almost always opposed by some of the citizens and gives cause for contention.

"The teacher who does the work (hews the wood and draws the water) should form a large unit in the distribution of funds. Numbers of teachers employed and aggregate attendance combined would be a good plan for distribution of funds.

"But the length of the school term must not be overlooked and must be considered. The school that does not attempt to maintain school longer than six months is probably not entitled to draw as much state fund as the one that is in session nine months. This combination plan of attendance, length of term, and teachers employed, will, in many instances, be the saving of funds by putting them where they may be best applied.

"The Legislative Educational Committee should be encouraged to use its influence in providing a safe and sound plan for the establishment of Secondary Schools within the reach of the masses. If I am to mention a plan, I will suggest that the plan of the State Educational Commission be made the basis of action and that a sub-committee be sent to the State Legislature and, if possible, get a law enacted for raising a State tax for the support of Secondary Schools.

"My individual research has convinced me that there are many communities in the state anxiously waiting till they can become able to establish and maintain such schools either by a sufficiency of wealth, or to overcome prejudice or penury. Such communities will rejoice when the State provides a fund for such a purpose.

"There should be more Secondary Schools; more efficient well qualified high school teachers, teachers who can specialize; better equipment

of apparatus for both Primary and Secondary Schools. The primary teacher should have normal training. The high school teacher should have technical training. The principal should have both normal and technical training, possessed with an abundance of "native ability", neither a faddist, a fop nor a fool.

"Finally, let the State provide a fund for a system of Secondary Schools, and may the God of Heaven give us teachers, able, devoted, and of willing souls."

After considerable discussion two motions were passed as a result:

(1) That the Legislature should restore the two mill tax and that the fund so secured be equitably divided among elementary and secondary schools.

(2) That a law should be passed providing that every boy or girl eligible to high school receive a secondary education at the expense of the district in which he or she resides.

The topic presented for final discussion was "Standards of Excellency as a Basis for a Rational Grading System", and was presented by Principal L. W. Smith, of Harvey. The substance of his argument follows:*

"The system or systems of grading adopted by schools the country over is the sign language between the teachers on one hand and the parents and pupils on the other. Many times it is regarded with little importance by the teachers; it is always regarded as a matter of great importance by the pupils and parents.

"The relative and absolute rank of pupils in school is determined by this scheme. The recommendation that pupils receive when going into the world of work is many times determined by these marks. Pupils often estimate their fitness for certain lines of work by the relative standings they secure in the different subjects. Sometimes as the result of low marks they become discouraged and drop out of school.

"It is evident that the system of marking is a feature of vital importance in school work. It is unfortunate that so little systematic study has been made of this subject. Apparently there are many marking schemes; upon examination, however, it is found that they are practically identical. The majority of schools presumably mark upon the basis of 100 per cent, assuming the 100 per cent mark to represent ideal condition of perfection. Really this does not represent the true condition because the pass mark is usually 70 or 75 per cent, hence the pupils who remain in a subject have their marks distributed over a range of only twenty-five or thirty points, and these are practically the only points considered in the grading of pupils. Different schools have a varying symbolic manner of representing these points; one school adopts the marks A, B, C, D; another, E, F, G; another has merely the two grades: A, meaning approved, and D, meaning deficient. For all practical purposes, however, the great majority of schools when they grade, not only assign an absolute standard to the pupil's work, but a relative or ranking one.

*The statements of fact made in this paper are based upon a study of the researches of some half-dozen investigators. The stimulus to undertake this study comes from Professor Charles H. Judd of the University of Chicago.

"Naturally the first question to raise in this subject is that of uniformity. Some systematic investigations have been carried on in this direction, the most notable of which is that of Dr. Dearborn, who at the time of the investigation was Associate Professor of Education in the University of Wisconsin. He made a study of three or four of the largest high schools of that state and four of the smaller ones. Some facts developed are especially significant. Pupils graduating from high school were found to attain relatively the same rank in the university which they had in the high school. They held this rank throughout their careers at the university. In only exceptional cases did pupils attaining the highest rank in the high school fall to the lowest fourth in the university. Inversely only one or two pupils who were in the lowest fourth of their class in the high school succeeded in gaining scholastic distinction in the university. Stating it in another way, 70 per cent of the pupils who received above 86 per cent in the high school attain a similar grade in the university, and exactly the same per cent who secure a grade below 86 per cent in the high school held the same position in the university. It is very evident from this study that the standards of excellence maintained by the high schools in Wisconsin are practically identical with those of the university.

"In individual studies pertaining to particular high schools it was found that one high school attained a higher standard of excellence than the University. Naturally, others were found to be slightly below the standards of the University. But the philosophy of averages showed a similarity of standard throughout. Consequently, when there is uniformity of standard it is possible for one high school to discover whether it is below or above the standard of the schools of the state as a whole. It was possible by the principles of this study to determine whether the standards in one school were higher than those in a neighboring one. Many interesting lines of development in standard can be worked out as the result of this investigation.

"When we have a high degree of uniformity the tendency is to be satisfied, and call our problem solved. There is one phenomenon in the work of the schools, however, which does not permit us to be content, viz. the enormously high percentage of eliminations both from the schools and universities. Great masses of young people leave the schools. To be sure, some of this elimination is beyond the control of the schools, but it is equally certain that the schools are blamable for a large proportion of it. I believe that one reason for the elimination of so large a number is that the courses of study are not adapted to the psychological standard of the young people. I want to discuss this matter at the close of my paper.

"The third reason for elimination is the lack of uniformity of standards among the teachers. I have shown that there is a large element of uniformity in the grades of the high schools and the university. But a study of individual schools, and individual departments, and individual teachers shows that there are important departures from this uniformity in these cases.

(Here followed some specific examples.)

"All of these considerations make it certain that there is a radical lack of uniformity among the teachers which ought to be corrected. The fact that the larger institutional divisions of education attain to considerable measure of uniformity is proof that it is practical to expect uniformity in standards. But who will set the standard, and what shall the standard be? There is only one answer to that question, viz. the aptitudes and needs of the pupils in every line of work; and when we begin to talk about aptitudes and needs we are treading upon ground where

it is possible to get scientific guidance, although the scientific features of it have not all been worked out. It has been found that human traits, as well as biological characteristics follow the scientific curve of error. Many investigations prove this, and many illustrations can be found. The height of man, chest measurements, and mental reactions, have been studied, as well as scores of other things, and in every case it has been found that when a sufficiently large number of cases have been worked over they all follow this curve of error. Take the stature of man as an example. Some will be abnormally low; others will be abnormally high, but these two extremes will show a very small number of individual cases. The curve when plotted shows the great mass of individuals to be in middle groups. There is no question but that the mental traits follow this same distribution. In common, every-day speech, we speak of mental traits of people, and refer to them as idiots, feeble-minded, deficient, backward, dull, average, bright, brilliant, talented, and it would be possible for us to indicate many items of division in the groups mentioned. Teachers in establishing a system of grading should determine upon its basis. Let the positions of distinction in grading be assigned to the few unusual ones: let the positions of marked deficiency and failure be assigned to the lower end of the scale, and let the natural distribution come between. If teachers were instructed in this matter they would be expected to hold it. Then there would be less cause for complaint among pupils, the administration of the school would be better, there would be a smaller number of cases of dissatisfaction among the parents and families of the community.

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"In my judgment we will secure better results in this matter if we make a thorough scientific study of it, and have the teachers follow this norm. Allowing the matter to go in haphazard manner as has been done in the past is fatal in its results.

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AGRICULTURAL SECTION.

The Agricultural Section met in Morrow Hall, November 24, 1911, with A. C. Norris, Rockford, presiding, and G. W. Sutton, Oakland, as temporary secretary.

The general theme of this year's conference was Field Plots and Laboratory Work in High School Agriculture. It was an experience meeting. The man with theories only was not put upon the program. At the conclusion of each paper, questions were very freely asked by the members present, and very ably answered by the speakers or some other member. These informal discussions, while being of the most help to all concerned, are very hard to report upon so that others may reap something good from them.

Mr. E. B. Collett, of DeKalb Township High School, read a paper upon the subject of High School Field Plots. We quote as follows:

"The topic assigned me by the committee deals with 'How the High School Plot Can be Made of Most Service to the Classes.' The writer firmly believes that the condition of plot work of a school will indicate the efficient service of the Agricultural department in that school. Is it saying too much to claim that the success of Agriculture departments in our secondary schools depend on, first, state unity; second, out-door work? Undoubtedly it is becoming a serious question as to whether Agriculture shall become firmly established in our high school, or slowly decline. Success hinges on results, and the writer intends to show that results hinge largely on plot work. More serviceable the plots, better the results, greater the success.

"We feel that in the use of land for agricultural purposes, two lines of work should be followed. First, that of experimental fields; a line of work having but little place in the high school, where investigation and experiments are carried on by the students taking collegiate courses. Second, demonstration fields, peculiarly adapted to our secondary schools, where the plant life, and the conditions favorable for its existence can be demonstrated, as well as definite problems worked out.

"At DeKalb these demonstration fields are carried on, primarily, for the students; secondarily for the community. To be of most service, we strive to avoid grand stand plays, lacking in educational value; as far as possible let the facts of our work teach, keep the work simple, and avoid profound reasons. The work is most successful when the instructor, long before, sees the dozen of problems that arise, which will insure that set of plots well worth undertaking.

"Endeavoring to keep in mind the above as fundamentals, especially, keeping plots the central figure, letting theory supplement practice, having the demonstrative type of plots, and letting facts teach, we have built up three divisions of plot work. First, staple crops, second, forage crops, third, orchard; each of which may be discussed under separate heads."

The speaker then proceeded to discuss, in detail, these three divisions of plot work and their method of treatment in his school. He said further and in conclusion:

"The writer has taken the liberty, in this paper, to translate plot work, broadly, to mean any out-door practical activity carried on in connection with work in the class room; thus giving opportunity for a brief discussion of work with live stock. With us, our text work on judging animals has been, that we might sensibly judge animals. Trips to homes, farms, or barns, are planned where animals under consideration can be studied. Sometimes boys of the class provide stock to judge. To be of most value, the boy finds that he needs to study for the purpose of applying that knowledge to an animal that he may have before him. This need of realization may be made prominent in various ways by the wide awake teacher.

"I claim, plot work is impossible in no school, outside of a large city, if you have the man to push the proposition through. You may supplement pot cultures and laboratory experiments for field work, but you can see for yourself the handicap under which you labor. I appreciate the excuses you present. It is hard to get all of a class to work out-doors effectively; hard to get tools cleaned off and put away as they should be; hard to counteract the influence of the fellow in the class who has no purpose, and doesn't care to learn; hard to get work done satisfactorily; even work hired done needs the closest of supervision. These things sometimes tax the instructor to the utmost, and no wonder he almost

loses heart in the struggle. He certainly needs the co-operation with other schools, to feel that he is not alone in the fight, and even then, he cannot stand the strain unless he gets next to the boy's heart and feels, once in a while at least, the throb of love that must be the impelling force of every real character."

Mr. Clifford C. Burns, Principal Harlem Consolidated School, Winnebago County, told how he is building up an agricultural laboratory in a Consolidated Rural School. As his school has been in existence only about a year, he is unfettered by precedent. His problems are real ones. In his talk, he explained what they are and how he is solving them. He has met with most success in his field plots, manual training shop and domestic science department. As his school ages, he will introduce the sciences which make for good agricultural instruction.

Our next speaker was Professor J. T. Johnson, Macomb Normal. He told what the Macomb Normal School is doing in agricultural instruction. His talk was illustrated with the stereopticon. He brought out very forcibly the point that rural schools are not in progress with other rural activities. We have rural free delivery, rural telephones, electric street cars, automobiles, gasolene heating and lighting of rural homes; but the same old school house of our grandfathers. Mr. Johnson showed us very vividly that he is teaching his students at Macomb some of the lessons which ought to be carried into these school houses.

At the conclusion of our morning session, announcement was made that during the year the members would be sent circular letters from time to time and thus be kept in close touch with each other. Our topic for the 1912 Conference is "Agricultural Laboratory Work in High School."

In the afternoon, our section met with the Biology Section and discussed the pedagogical conditions and principles involved in the introduction of agriculture in the high school. L. D. Coffman, Charleston Normal, introduced the subject. He enumerated conditions as

(1) "That no attempt should be made to introduce agriculture as a separate subject without first having made adequate provision in the way of equipment.

(2) "Another condition that handicaps the secondary schools and militates against efficiency in instruction in agriculture, is that of securing competent, well-trained teachers.

(3) "A third condition is found in the attitude of the high school teaching force to the new subject."

This attitude was shown to be unfriendly.

(4) "The fourth condition is the necessity of having the subject more fully defined."

The speaker next proceeded to discuss some phases of the current philosophy of education as it applies to the curriculum of the high school.

In a further discussion of principles involved in the introduction of agriculture Mr. Coffman said:

"It trains in a large number of habits and gives possession of much information that is now more than ever imperiously demanded. The demand for such training and instruction is indicated (1) in the drift of rural population from country to city, (2) in the rapid increase of tenant farmers, and (3) in the percent of increase of consumption over the percent of increase of production of the agricultural products in America.

"Another principle which every public school administrator takes cognizance of today is that the individual and the community do not require the same thing. The enrichment of the course of study has been due both to outside requirements and to a recognition of individual differences. Because people vary by nature as to abilities we have provided them in the curriculum with a greater variety of appeals. But no individual responds to all of these appeals nor was it intended that he should. A community is made up of different kinds of people and consequently of different occupations and vocations. No one any more attempts to practice them all. 'What is one man's vocation is another's avocation, and that which is technical and professional to one is humanistic to another.' Specialization in occupation and life has its counterpart in the differentiation of materials in educational procedure. The high school is therefore obviously devoted to the problem of differentiating students according to their special talents and this occurs largely as a result of the opportunities afforded for selection by the modern curriculum.

"The course of study required by a community is necessarily far broader and contains more material and subjects than that required by an individual. The individual is restricted to a single vocation and to those common cultural possessions that make him an agreeable citizen and a supporter of the best in our institutional life. Any theorist, therefore, that argues that all pupils alike must take agriculture or any other distinctively vocational subject is flying in the face of the unknown facts of modern psychology and sociology.

"Just what shall be the place of agriculture in the school, I find to be still somewhat a matter of dispute. The agriculturalists claim that it shall have a recognized place on the regular program, but some of the teachers of science hold that no such recognition is necessary. They both assert that some instruction in the field is imperative. The practical school man who has little technical knowledge of either field is called upon to arbitrate the discussion, and after all he is the one who in the long run must settle it, but it is hardly likely that he will ever settle it so far as to meet the full approval of each of the contending camps. However, in his opinion the recognition that should be given to the subject may be briefed as follows: Agriculture should not be a smattering of botany, of zoölogy, of chemistry and of climatology. Nor is it held in solution, so to speak, in nature study and geography. We cannot dip into the natural sciences and take out a piece here and another piece there and make them separate chapters of a science of

agriculture. No science ever grew or was ever organized in that way. It is true that each of these sciences affords many opportunities for the teaching of many agricultural facts, but that does not mean when they have been thus taught that one has a science of agriculture. The teaching of agriculture through all of the science would probably mean that it would be done by individual specialists in a haphazard manner. At least the primary facts of agriculture would not be organized with reference to its purposes. No university or college has as yet demonstrated that it can satisfactorily carry out such a scheme. If it has not succeeded in these higher institutions what can we expect of it in the high schools where the teachers of the various sciences have a much more limited training?*

"The danger of all modern science teaching has been extreme specialization and that specialization has occurred altogether too frequently before the student has acquired any adequate knowledge of the fundamentals of any field. It is for this reason that I hold that it will not do to leave agriculture to be taught incidentally by the scientists. The high school principals and the superintendents know this and they will not readily accede to a condition that in the light of their experience means failure.

"It is sometimes urged that it makes little difference where facts are taught just so they are taught. And it is also urged that the method with which they are taught makes no difference. This is equivalent to saying that if all the facts of agriculture are taught in the teaching of the various sciences that there will be no need of agriculture having any place on the program. My first objection to this is that the facts *will not be taught with reference to agriculture*; they will not be organized in light of its need. Whatever organization there is will be of a purely hit or miss sort. My second objection is that *all* the facts of agriculture will not be taught. The other sciences do not provide for instruction in farm machinery, stock judging, soil fertility, corn judging, the selection of seeds, etc. My third objection is that facts taught with a certain purpose in mind are not necessarily readily transferable to another field. Without conscious organization vital relationships are likely to be missed. Either agriculture is or is not worthy of a place on the program, and if it is then the facts and methods that constitute its special field are the ones to be emphasized.

"We are not to infer from the preceding remarks that the teacher of agriculture will need to know no science. Indeed, he will,—he must be thoroughly grounded in the elementary principles of science and especially well informed in all these phases that have a special bearing upon his field. The leading teachers in agriculture will be thorough scientists. There is no other possible way for them to advance their field. It is not with this phase of the problem however, that I am so much concerned as I am with the fact that a science is never developed through the reorganization of other sciences. It can only be developed by the application of scientific principles to the facts in its own field. The principles of agriculture will be deduced and organized and applied through the study of the chemistry and productivity of different types of soils, the culture of certain forms of plant life, animal husbandry and the like. With some of these the botanist would have no concern; with others, the zoologist and with still others, the climatologist. Moreover the botanist would be interested in a multitude of facts and phenomena that would have but a passing interest for the agriculturalist. Even if they were to take the same fact for study, it is not altogether improbable that there would be a somewhat noticeable difference in treatment because of a difference in point of view."

"It will be noted that throughout the discussion of the last principle, I have implied that agriculture is both an art and a science. That it is

an art requires no discussion as it has been practiced for centuries; that it is a science is a fact that its advocates are trying to demonstrate. In the secondary schools shall we emphasize it as an art or as a science? Or shall the two phases be given equal emphasis? To my mind it will never be rational to emphasize the art side to the serious neglect of the science side, nor will it ever be rational to emphasize the science side to the utter neglect of the art side. If either must be neglected in the school, I am convinced that it is better to teach agriculture without emphasizing its technique than it is to teach it without emphasizing its content.

"In our great haste for application and for immediate, tangible results, we may neglect that broad foundation which makes technique meaningful. The elimination of the so-called impractical invariably results in the inefficient functioning of the remainder. The very highest and by far the most practical results will be secured in teaching the science of agriculture instead of teaching the art of agriculture. One may be able to teach agriculture without knowing how to harness a horse, milk a cow, or bind grain. Greater emphasis is needed upon the more purely scientific side. It is time that we had ceased sneering at pure science. It is pure science that always leads to practical science and the present generation undoubtedly needs a greater respect for it.

"However we must remember that the literature of agriculture should never divorce the pupil from actual and sympathetic contact with the materials of education." Laboratories and experiment stations will not be permitted to remain idle. My plea is that the art of agriculture be practiced more scientifically and I hold that this can best be accomplished by placing the primary and predominating emphasis upon the scientific side so that every prospective farmer who graduates from our schools will be equipped with the scientific method."

T. L. Hankinson, Charleston Normal, discussed the subject from a biologist's standpoint, while Renzo Muckleroy, Carbondale Normal, talked from an agricultural teacher's viewpoint. At the close of the formal discussion, the subject was thoroughly discussed by those present.

On Saturday morning the members made a field trip through the University and visited the Poultry Farm, The Dairy Barn, the Greenhouses, the Laboratories and the Experimental Plots.

The Conference Committee is as follows: A. C. Norris, Rockford; F. M. Giles, DeKalb; Renzo Muckleroy, Carbondale; G. W. Sutton, Oakland; William Hedgecock, LaSalle; L. H. Darling, Plainfield.

BIOLOGY SECTION

The topic for discussion by this section was "The Problem of Connecting the Work in Biology with the Present and Future Experiences and Needs of the Pupils." This was treated under four headings: First it was considered in respect to the need

for personal appreciation and response. Dr. John G. Coulter led this discussion, and spoke in substance as follows:

"Personal appreciation and response to the work in biology is not to be expected of tenth grade pupils unless the work appeals to their interest and appears to them to be of important use. Teachers are justified in sacrificing somewhat of the biological rectitude of their course in order to secure at the outset this interest and appreciation of usefulness. Teachers who are successful in obtaining 'personal appreciation and response' from nearly all of their students are teachers first and biologists second. The opening week of the course may well be devoted in the main to reports by the pupils upon specific assigned topics, materials for which are to be obtained by local observations and inquiry, the aim being to secure an appreciation of the importance of knowledge about plants and animals judged primarily from local conditions and experiences. The teacher should give the pupil opportunity to form his own opinion as to disposal made of the time of the course. He should see why each step of the course is taken and be induced, if possible, to approve the investment of his time in the way which the course demands. 'Appreciation and response' may be stimulated by non-technical reading, such as the essays of Thomas Huxley and Bishop Spalding, which appeal strongly to sentiment as well as reason in arousing appreciation of the importance of biology. Simple out-of-school investigations, individually and quite specifically assigned, are a valuable aid in securing the desired end."

Next the subject was discussed "With Regard to the Intellectual Necessities." by Miss Grace Baird, of Urbana. Briefly stated her argument was as follows:

Throughout the course in Biology, the aim is not only to develop, as in other sciences, the scientific attitude of mind, of observing accurately, judging fairly, and deducing general principles to be verified and applied, but to train the young citizens in dealing with life phenomena. Because conditions of life are constantly changing, and the adjusting of one's self to new surroundings must follow, the opportunities in the laboratory and field work in Biology to study adaptations, should enable a student to better interpret his own place in nature, and to play his special part in a many-sided life more efficiently.

Willard N. Clute, of Joliet, followed connecting the work in Biology "with the Industrial and Vocational Needs and Applications." We give the following brief abstract:

The speaker took up the botanical aspects of the problem as being more familiar to him and called attention to the lack of interest in the courses of botany taught at present. This was attributed to the fact that the courses are not adapted to the needs of the pupils. Looked at from the viewpoint of a pupil the things most desired seem to be the names of specimens and how to care for them when living. This desire was attributed in part to the advances of aesthetic tastes and in part to a desire to decrease the cost of living by growing vegetables, as well as to the natural curiosity of every child regarding natural objects.

In changing present courses to more adequately meet the needs expressed, it was suggested that a certain amount of knowledge regarding the structure of plants must always be fundamental to any good course in botany. After this the identification of plants, the making of collec-

tions, and the cultivating of plants in the school garden and other operations of the horticulturist may be made part of the course.

The great advantage of making the school garden the center of the botanical course was pointed out. It is here that the pupil sees his specimens in their natural surroundings. This also forms a good point of departure for the study of economic entomology, ornithology and the like.

Among the features of the work that may be depended upon to stimulate the interest of the pupil the following were enumerated:

Avoid subjects that cannot be treated at first hand.

Make use of books only when the matter they contain extends a subject already studied at first hand.

Always use when possible, fresh materials, Pickled materials are seldom desirable.

Assist the pupil in preparing his own specimens for study.

Study everything out of doors that can be studied.

Make frequent field trips to woods, museums, nurseries, greenhouses, cemeteries, private estates and the like.

It was further pointed out that just as biology differs from chemistry and physics in content, so it must be taught in a different sort of a laboratory. A greenhouse and school garden were mentioned among the things essential to the teaching of biology. The advantages of a four term year in which the biology was omitted during the winter term was also dwelt upon.

Among the things which the course outlined as expected to be accomplished were named the introduction to the world of living things and the consequent eradication of popular superstitions, the making of desirable collections, the inculcation of the scientific spirit and the cultivation of a love for nature.

"Sex-Social Functioning and Biology" was the fourth subtopic, and was ably presented by Miss Jessie Phelps of the State Teachers' College, Ypsilanti, Michigan. The substance of her thought was as follows:

"It is accepted as axiomatic that the school is supposed to fit its students for society and that the best educated man is he who is best fitted to function perfectly in his group. As there are all grades of social groups from simple to complex, so there are all grades of educated individuals, and it follows that the best schools will seek to prepare their students for the largest group activity of which those students are capable. Now the largest conceivable social group is the one that extends through several generations, that is, an historical one, therefore the man and woman who would live most completely must project themselves forward into their children's children, a matter, as we see, of eugenics,—a matter of sex-social functioning. Just as deep and wide then as the human race is the social functioning which is determined by sex.

"The question of our education is: 'what can the school do toward making social functioning complete,' and one of the problems of this conference is: 'What part specifically does biology play in this socializing of our boys and girls?'

"It will be well at the beginning of our discussion to name a few of the more obvious sex-social needs of boys and girls and young men and women, and to note the corresponding conditions of society, which give rise to these needs.

"1. Of all sex-social needs that of the choice of a mate is without doubt the most important. It begins to be felt very early, if in no other

way than through the taunts of companions or by the senseless teasing of elders. Many other conditions of society also force the fact home to both boys and girls that they are expected to choose mates.

"2. The position of man as well as woman in the home, in business and in politics is determined by the fact of sex. Our pupils, consciously or unconsciously, are having their opinions of men and women in marriage, business and politics colored by all they see. The prevailing double standard of morals and etiquette and business cannot help but make a deep impression.

"3. The psychological fact that the state of mind of falling in love is concomitant with that of religious conversion and that of the awakening of the aesthetic sense assumes deep social significance determining religious activities and the character of the art-interest and expression of adolescents.

"4. The prevalence in some communities of illicit sexual intercourse—not necessarily through houses of prostitution—is a sex-social condition which our school boys and girls may have to meet and it is so often accompanied by venereal diseases that it imposes heavy responsibility upon society. If 'sixty percent of our men are some time or other infected with one of these diseases, if fifty percent of infected women become sterile, and if twenty-five percent of all blindness is due to gonococcus infection alone,' then the presence of these diseases in our midst must be considered one of the most important of all sex-social conditions.

"5. Of the future sex-social needs of our students the need of founding a home is the most paramount. Home making is the natural culmination of the love making period, leading of course to the final choice of a mate, a most important act from the eugenic view-point.

"6. As parents there will be both the duties imposed by the fact of inheritance and the duties of the nurture and education of the children. The women will need to be willing to bear and nurse children; the men to be able to support and protect, and both parents will need to be able to teach the facts of sex to their children. For what should men and women be educated if not for these things? The instruction which they will wish to give their children will include an explanation of birth and death, of the more obvious normal phenomena of puberty (menstruation, emissions, etc.) and perhaps masturbation. To it they should be able to bring accurate knowledge, good judgment and sympathetic tact.

"What does the school curriculum offer in way of direct help in meeting all these needs of our students and these conditions of society? History teaches the world's standards of marriage and the place of woman and man in the industrial and political fields. Literature sets forth both the actual and ideal standards of love and marriage. Music and the fine arts give legitimate expression to all the emotions, religious, aesthetic and sexual; and biology, because it is the science of life, cannot but offer material aid in the way of giving specific facts of sex and fundamental lessons or explanations for sex.

"Not all biology, however, is of great or direct help. Most of our courses, in fact, omit or touch most lightly upon the very thing that the young student is all alert to know, namely, the anatomy of animals. The eagerly expectant student is usually put through wearisome hours of technical detail at the very beginning or made to listen to glowing reasons as to why he is studying biology. I have known 'perfectly good students' to be turned aside from further science work because they felt they were not arriving at the desired goal, namely, knowledge of themselves. The young high school girl who said she did not like biology because the teacher insisted on her learning that protozoa were made of protoplasm and were one-celled, while she did not care at all what they were made of, illustrates the point in hand. Any girl, how-

ever, would more than tolerate being taught these facts if she could only connect them with the interesting and valuable fact that human eggs are protoplasmic and are one-celled.

"A teacher must not think that his course in biology is throwing much light upon the puzzling sex problems of his pupils by the teaching, for instance, of the fern and the earth-worm only. Indeed, he may add to the mysteries of the situation by emphasizing hermaphrodite forms. Why not open our elementary courses in biology frankly and boldly, where the student is eager for knowledge and more than ready to give attention, and dissect a mammal at once? We would thus be using a long accepted pedagogical principle, and the teacher would not need to waste more than one golden moment in defining such a course and none at all in luring the normal minded student on. Both sexes of the mammal should be dissected and at least one or two pregnant females demonstrated. The animal as a whole would of course be studied in general and the reproductive systems simply taken up in their proper place and time, no more or no less emphasis being placed on them than on the digestive or excretory systems,—but the veil of mystery would forever be rent in twain by one stroke of the scalpel. The light of sufficient knowledge would allay many fears and there would be established at once sufficient reason for the rest of the course. Technical terms, such as male and female, when used in connection with, for instance, the pronuclei of the paramecium, would have real meaning and not be vaguely suggestive to the student's mind.

"To recapitulate: This mode of procedure reaches several distinct ends: first, natural curiosity is satisfied, that is, a basic intellectual need is met; second, the possible sense of shame is dispelled, third, a definite, accurate picture of organs and processes replaces the incorrect or mystic one; fourth, the plain, blunt truth inoculated into the mind creates antitoxins which help to maintain the health of the mind; fifth, preparation for future knowledge is made; and sixth, the door of opportunity is open for personal help where that may be sought by the pupil or where it needs be given by the teacher.

"If now this introductory work on the mammal is followed by anything like a complete course, still more will be accomplished in helping to adjust the student to his largest social group. The evolutionary setting, which can easily be given, makes the only acceptable explanation of the fact of human sex—and all thoughtful students demand an explanation of these, as of all phenomena.

"I myself do not see how we can ever hope to eradicate the social, or any other, evil without education,—an education which creates definite, clear, mental images and offers reasonable philosophic explanations. Since biology is the only subject of our curriculum which handles material that can give these images and explanations of the phenomena of sex, we believe the biology teacher should be very conscious of the social needs of the student and the conditions of society, which are determined by sex, and that the biology course should be so arranged as to meet those needs most directly, at the same time being adaptable to further possible necessary teaching in sex hygiene and to co-operate functioning with courses in history, literature, art, civics and ethics."

Miss Phelps concluded by giving the following recent references:

1. *Good Housekeeping*. September. October. November, December, 1911.
2. *Journal of Educational Psychology*. October, 1911.

3. *Social Diseases*. October, 1911—gives the proceedings of the last meeting of the Moral Prophylaxis Society.

4. *Allen's Civics and Health*—chap. XXXIX—Is Class Instruction in Sex Hygiene Practicable?

There followed a report of the Committee on Syllabus appointed at the preceding Conference.

A motion prevailed that this report be accepted tentatively and reported on at the next year's meeting after the members have received printed copies and have had opportunity to criticise and report. All criticisms and suggestions should be mailed to Dr. T. W. Galloway, James Millikin University, Decatur.

Following is the report in full:

Owing to the indefiniteness of our instructions your committee on Syllabus for Biology Courses in the High School has not felt that it should undertake to prepare a definite outline of study. We have contented ourselves with a statement of what we consider the purpose which should control the formation of such a syllabus and the selection of text books, together with an intimation of the general types of topics which should be represented.

I. Such a course should seek the following, among the possible things:—

1. The production and conservation of a vital interest in plants and animals.
2. An appreciation of the human values of plants and animals.
3. The encouragement of the attitude of raising and solving problems concerning plants and animals.
4. Some ability to use the library, the field, and the laboratory in individual pursuit of these interests.
5. The ability to sustain interest in these problems thru considerable periods.
6. A sense of organic adaptation to the environing conditions.
7. A conception of development and of the evolutionary series of animals and plants.
8. Some knowledge of living material; its organization in plants and animals; its properties and the relation of these to the activities of the organism.
9. Some experience in the classification of organisms,—theoretical and practical.
10. A conception of the place of man in the Biological series, along with the convictions that this does not invalidate, but rather heightens, the meaning of all the higher human qualities.
11. A sane, wholesome appreciation of the origin and meaning of sex, and its bearing on human life.

II. The committee believes that it is not desirable, even if possible, to have uniform courses in Biology in the different schools of the State. We believe however that all exercises in all schools should be handled in such a way as to secure the "scientific habit," which includes among other things:—the habit of correct observation; of accurate expression of these observations both by means of notes and drawings; of discriminating between superficial and essential observation; of correct thinking; and of willingness to re-test the final conclusions when new evidence appears.

In order to do these thing in Zoology, the following among other possible exercises should be included.

1. Exercises specially introducing to the local field, and showing the general relation of animals to their surroundings. By field is meant the whole outdoor *natural* resources of the land and water and air, reasonably available to the student, whether extended or limited.

(The time estimates below are purely provisional and suggestive and are expressed on the basis of $\frac{1}{2}$ year in Zoology (first figures), and of 1 year (second figures). The numerators represent periods devoted to laboratory or observational work; the denominators text book or reference work. It is not implied that this order of exercises is essential).

Time: $\frac{3}{1} - \frac{5}{1}$ periods.

2. Exercises introducing to the somewhat artificial resources, as fields, gardens, greenhouses, barnyards, zoological gardens, stock-yards, museum, etc.

Time: $\frac{3}{0} - \frac{5}{1}$ periods.

- 3 Exercises introducing to the library and all related helps, and the the best method of using them.

Time: 2—4

4. Similar exercises introducing to the laboratory and its apparatus, and the method of using to advantage.

Time: 2—4

5. Exercises of collecting, note-taking, and rough identification of the common types of animals by means of pictures and descriptions, and by use of keys.

Time: 5—8

6. The careful study of some representative animal that will suitably and convincingly illustrate the general adjustment of animals to the surroundings, the differentiation of organs, and the relation of these organs to the work which must be done by the organism. (Ecology, physiology and morphology.)

Time: $\frac{14}{1} - \frac{14}{1}$

7. A series of exercises developing inductively the observable differences between inorganicisms and organisms; and between plants and animals.

Time: 4—4

8. Exercises to show the nature of the main phyla of animals and their progressive character. These should include at least the Protozoa; the Worms; the Mollusks; the Arthropods; the Vertebrates, inclusive of man.

Time: $\frac{15}{15} - \frac{30}{30}$

9. A group of exercises to stress the points at which animals most deeply touch human welfare, both directly and indirectly.

$$\begin{array}{r} 5 \quad 15 \\ \text{Time:} - \frac{\quad}{1 \quad 1} \end{array}$$

10. Exercises calling for the continued study of some type or types, in natural conditions, through the whole period of study. Calendar Studies.

Time: Scattered through year, but aggregating 10-20 periods.

11. Some studies specifically illustrative of variation, of the struggle for existence, of heredity, and other similar aspects of evolution (inclusive of human variation, etc.)

$$\begin{array}{r} 8 \quad 15 \\ \text{Time:} - \frac{\quad}{7 \quad 15} \end{array}$$

12. Exercises especially emphatic of the general relation which animals sustain to the broad surroundings, (Ecology)—leading toward the problems of distribution.

$$\begin{array}{r} 1 \quad 3 \\ \text{Time:} - \frac{\quad}{3 \quad 7} \end{array}$$

13. Studies illustrating the steps in the life-cycle of animals.

$$\begin{array}{r} 1 \quad 5 \\ \text{Time:} - \frac{\quad}{3 \quad 5} \end{array}$$

14. Certain studies, both from field and library, appealing to the decided native interests; and illustrating beauty, strangeness, complexity of habits or instincts, or some other of the extra appeals to wonder. To be used through the course when needed for motivation.

$$\begin{array}{r} 2 \quad 3 \\ \text{Time:} - \frac{\quad}{3 \quad 7} \end{array}$$

III. The following topics and exercises are important for use in the course of botany. It is recommended that these topics be studied in a synthetic way rather than by division into the leading heads of botanical science. Also it is recommended that the place of plants as related to man's interest be recognized throughout the study. Important literature which presents the worthwhileness of the study of plants should be made available for constant use throughout the course.

1. Local plant areas:

(a) The types of natural plant areas of the local region, as forests, stream banks, roadsides, and swamps.

(b) Local artificial plant areas, as a cornfield, garden, or planted forest.

(c) Acquaintance with the more common plants that are dominant in local areas.

2. The seed plant as a working unit—an outline study of the general structure and work of the parts of the plant; the way in which each contributes to the whole plant as a working machine; include food manufacture and the essentials of plant nutrition, reproduction, etc.
3. Special study of the regions of seed plants—roots, stems, leaves, flowers and seeds, with emphasis upon function in so far as function may be determined by observation and experimentation. Include nutrition and reproductive processes.
4. The bacteria: studies as instruments of decay, and disease, general hygienic aspects; relation to soils, and industries.

5. Parasitic and saprophytic plants other than bacteria: destructive fungi in relation to crops and other industries; importance of saprophytes as instruments of decay; the yeasts and fermentation.
6. Forests: uses, distribution, dangers, preservation, artificially grown forests.
7. Artificial control and methods of improving plants—plant culture and plant breeding.
8. Plants and the struggle for existence; overproduction and failure of those that cannot secure the necessities for life. Weeds as illustrations of successful plants in the interrelationship of plants and animals; open nature; cultivated plants as illustrations of success under artificial care.
9. The geographical and regional distribution of plants: plants of different zones, and of different regions as hydrophytes, mesophytes and xerophytes.
10. The great groups of plants: where they grow; order of increasing complexity, and general outline of the evolution of nutritive and reproductive structures.

In the afternoon this section held a joint session with the Agricultural Section. See report of that section.

CLASSICAL SECTION.

The Section was called to order at 9:15 A. M. by the chairman, Dr. H. V. Canter. After some general words of introduction, Professor Pease called attention to the exhibits in the Classical Library. The report of the committee on first year Latin instruction was read by the chairman, Professor H. J. Barton. The report reads as follows:

"As the personnel of the Conference changes considerably from year to year, it may be proper to say that this Committee was appointed for a period of two years, with directions to report to this conference and to present a final report in 1911. The appointment grew out of discussion centering around the doctrine of INTEREST. It was thought that the last word had not been said about the best way to teach first year Latin (and may that last word never be said and that it was possible to make suggestions, as a result of our discussions, that would be helpful to the Classical teachers of the state.

"The most remarkable educational movement in the last twenty years in the Central West has been the development of the high school. To our minds, it is of greater significance even than the rapid progress of the state universities. In this movement, Illinois has had her full share. In her high schools, there are now 50,000 pupils. We all agree that the purpose of these schools is to give the best possible preparation for citizenship in the Republic. Moreover a small percent of the pupils will go to college. As teachers of the classics, we have the very positive conviction that a part of this best possible preparation for life is study of the language and literature of the Greek and Roman world. Why we believe this, we state in various ways but in belief we are united.

"The general problem to be solved by us then seems to your committee to be this:

"1. To attract to the CLASSICS a larger number of our 50,000 high school pupils.

"2. To more fully imbue those who do not go to college with the spirit of the CLASSICS.

"3. To so fully imbue with the classical spirit those who do not go that they will continue the study of the CLASSICS in college.

"As we survey our methods in first year's work, we find that we have not changed very materially the ones our fathers used. Some change however can be noted. We have come to put less emphasis on grammatical drill. Moreover we have taken long strides toward standardizing the authors read in the whole course and in the first year, there is a very pronounced tendency to consider Cæsar's military history and personal vindication the best book for study. The fathers did not think so. We have also endeavored to arouse historic imagination by the free use of illustration.

"Instruction in the CLASSICS in those days when they practically possessed the field, that is before the seventies, was deep and narrow. We may rejoice that that condition did not continue. It is better for all progress. And we are now asked that our instruction possess width without shallowness, a demand that calls for the most exacting investigation of content and method but which will end we believe in placing the CLASSICS on a yet more secure basis.

"To that end this committee was appointed and for that purpose, you are here today. We desire to make the following specific recommendations and invite your freest criticism:

"First: We recommend a thorough mastery of a small amount of Latin rather than superficial work over a larger field. Interest throughout the entire course is largely dependent upon the wisdom with which this point has been handled in the first year. Your committee believes that one of the most important principles for our teaching is the sense of mastery; that it is peculiarly important that those who teach highly inflected languages keep this principle ever in mind. This sense of mastery on the part of the pupil promotes interest in a remarkable degree and is acquired when the pupil is able to read connected discourse. We therefore recommend that after two or three weeks spent on forms, he be given connected discourse based on the text already studied in detached sentences. This connected discourse may be found in books published and which partially recognize the principle which we advocate, or the material may be supplied in some cases by some duplicating process. Extra readings added with the thought that they are to be used when all Latin syntax has been studied may be utilized. No harm will result from the supplying of a few unfamiliar forms. The principle is that a certain passage of prose be selected and the study directed at it and not the reverse. In this way the pupil, after two or three weeks study, will feel that he has accomplished something as he has in fact.

"Second: As to pronunciation, your committee recommends that after teaching the sound no great attention be given to it as a separate subject but that it be taught each day by means of intelligent oral reading of the text.

"Third: As to writing Latin in the first year, we recommend that it be postponed for a few weeks but that it form an important part of the year's work because of its effectiveness in teaching accuracy in forms and constructions. Its purpose is almost solely to enforce these principles.

"Fourth: As to syntax, we suggest the importance of case syntax especially as the establishment of grammatical relations seems to have been left to us by the teachers of English. But this does not mean need-

less repetition. After a student has once secured a clear idea of the direct object relation, why keep calling up the matter?

"Fifth: We suggest the importance of good English in all translation and that it be rigidly demanded. There is a great opportunity here for promoting culture as well as popularizing the study in the minds of the general public.

"Sixth: The possibilities of increasing interest by means of games, pictures, and lantern slides should receive the attention of every teacher of the classics.

"Seventh: As to vocabulary, we recommend that emphasis be put upon the intelligent memorizing of Latin words. As far as possible this should be done through association with English cognate forms.

"Eight: That the oral reading of Latin is an essential element of success.

"In submitting this report, your committee earnestly request the co-operation of all teachers of the classics and especially invite correspondence during the following year. Your experience may have great value. We desire nothing so much as that the outcome of our discussions may have a permanent value. Committee: H. J. Barton, Francis Sabin, Harriet Bouldin."

The next paper was given by Professor J. D. Fitz-Gerald on The Importance of Latin to the Student of Romance Language. Following is a brief summary of his paper:

Latin is of prime importance to the student of Romance Languages, trite though that statement be. I wish to point out briefly some of the matters which show that importance. At bottom the Romance Languages are only modern Latin developed out of the Ancient Latin in separate territories which had relatively little communication with each other.

In the first place, then, Latin accent has on the whole come down intact to the modern period. Latin vowels and Latin consonants have in accordance with general laws produced specific resultants in the modern languages. Out of vowels and consonants we build syllables, and out of syllables words. Latin words have, in accordance with the same general laws previously referred to, survived the modern times. In a highly inflected language like Latin, words have more than one form and we find them in paradigms. Some parts of the declensions and very many parts of the conjugations we still have in the Romance Languages. Words are grouped together in phrases and sentences according to rules which we choose to group under a general heading called syntax. The syntax of the Romance Languages is most easily understood when one is possessed of a sound knowledge of Latin syntax, out of which it developed.

But accent, vowels and consonants, words, paradigms, and syntax are but the bones, the flesh and the skin of the modern descendants of Ancient Latin, and beautiful though their outward form be, they would be unsatisfactory if they were not possessed by a soul. The spirit that informed the Latin language, and the Latin literature, is the same spirit that quickens the whole body of the Romance Languages. The culture of Rome, and through Rome the culture of Greece, is the inspiration of the literatures of the great Romance peoples. The classical heritage of the Middle ages was felt somewhat throughout all Europe; in a high degree in all the Romance countries; and most of all in those Roman countries (Italy, Provence, North France, Cataluna, Castile and Portugal) which have developed great literatures.

The next paper was by Professor S. P. Sherman on The Importance of Latin to the Student of English.

Professor Sherman asserted the absolute indispensibility of Latin to the student of English because of its intimate relationship with English from the earliest times; that the study of Latin is the key to the English dictionary; that acquaintance with Latin is essential to accuracy, range and assurance in the use of English words. English authors constantly had recourse to the Latin. If we neglect the problems in literary history that arise from this unbroken Latin discipleship, we neglect the distinctive features of the entire literature. The neglect of the Latin classics threatens the English classics with obsolescence. Professor Sherman then gave an exceedingly interesting and valuable summary of results secured from questions asked 400 students in English. These results are as follows:

1. A student's command over English vocabulary varies directly with the number of years he has studied Latin.

2. A student's acquaintance with the commonplaces of classical allusions varies directly with the number of years he has studied Latin.

3. A student's ability to read intelligently a page of Shakespeare varies directly with the number of years he has studied Latin.

After discussion a general desire was expressed that the paper of Professor Sherman should be printed so that it might be accessible to teachers.

The report of a committee on a traveling stereopticon was presented by Alberta Clark of Urbana. As the work of the committee was incomplete, it was directed to continue its work and Professor C. E. Allen of Carbondale was placed on the committee in place of Mr. F. W. Thomas who had removed from the state. Adjourned until 2 p. m.

The Section again assembled at 2 p. m., Professor A. S. Pease in the chair.

The first paper was by Miss Ellen A. Ford of the Charleston Normal School and dealt with the matter of translation. She argued that the method used in translation should be one of logical relation rather than the "word by word" method. In part, Miss Ford said:

"A student should learn to understand Latin in the order in which it is written. In translating, he should proceed in the order of words as far as he can with good sense and good English, then reach forward to the first verb form not tied up in a subordinate clause other than the one on which he is working; then go back in order by units of thought to the form from which he reached forward. In hearing or reading any language, the ear or the eye groups units of thought from which, and not from separate words, we get thought from language. To ask a student to advance by words carefully concealing succeeding words logically belonging with it, is to ask him to do in a foreign language what he would find difficult in his own. Getting the thought from a Latin sentence is a mental exercise based on the vocabulary, inflection and syntax facts of the Latin language; translation is an exercise in English."

After discussion, Miss Jennie Rattray, of Princeton, presented a paper on how far each year's work should be a unit. This paper emphasized the importance of catching the animating spirit of each author and of finding his relation to our own times.

The question of the publication of the papers presented was left to a committee consisting of Dr. H. V. Canter, Miss Rattray and Professor C. E. Allen.

Professor H. J. Barton presented the work of the Classical Association of the Middle West and South and urged all not already members to join it.

The concluding number on the program was an illustrated lecture by Professor H. L. Wilson of Johns Hopkins University "The Ancient Cities of Etruria and their Buried Treasures." This was of great interest.

The attendance at both sessions was large, the papers excellent and the discussions were participated in by a large number.

MARY J. ENGLISH, Secretary, Decatur, Illinois.

COMMERCIAL SECTION

The morning session of the Commercial Section met at 9 o'clock in Room 315 University Hall, Dean Kinley presiding.

The chairman opened the session by a few remarks to the effect that the commercial education in the secondary schools of our country has passed the experimental state, and outlined the relation between the University and secondary schools.

After the election of W. A. Leonard as Secretary, Principal E. L. Boyer, of the Township High School, Chicago Heights, read the first paper of the morning. His topic was: "What Subjects Should be Included in a High School Commercial Course,

and What Proportion of the Curriculum Should be Allotted to Them?" Among other things he said:

"The question is an admission that there is at present no accepted and agreed-upon, model Commercial Course in our high schools. It is also an admission that there is still doubt as to what portion of school time should be given to that course.

"There used to be great fear that the utilitarian idea would become the wolf to destroy all real culture. In fact, for years the high schools were absolutely certain that they should exist to teach Latin, Greek and Mathematics, with perhaps a year or more of Rhetoric and Chemistry. No consideration was given to individual bent, and little or none as to what the pupil wished to do or to become.

"The business colleges for several decades have offered so-called business courses, and many of these schools have taken all who would enter, regardless of previous preparation.

"The commercial work is firmly established in many high schools but there are places still where it is not found. Teachers are in training in our universities, and few universities are without a School of Commerce. These facts are a guaranty that commercial education is not only not to be thrown out of our schools, but that it is to be made more and more attractive;—the poor man's college today, our city and township high schools, offers better fitting than did Harvard and Yale sixty years ago. There never was a time in the history of the world when it was more necessary for business men to be specially educated for their work.

"We are compelled to believe that the Commercial world is at *white heat* and that the curricula of our high schools must recognize the fact in the Commercial Courses offered.

"We must not be too swift to catch at the untried but there must be courage to take the advance step—holding fast to the good in the past.

"Professor Bristol of Cornell writes: 'We have no published matter on this point. I take pleasure in indicating below two points, in the statement of which I am quite sure I may claim to speak for my colleagues, as well as myself individually. (1) The Commercial Course should include an enforced and more extensive amount of English than is found at present in the Commercial Courses of many high schools. Some knowledge of English, as found in literary works and as used by educated people, is absolutely essential for the proper training of the high school pupil. Too often graduates are limited in their own power of expression, and even in their ability to understand English, to the limited range of the vocabulary of one or two kinds of business.

"(2) More attention should be given to history than is commonly found in these courses, and especially to the commercial and industrial aspects of history. Closely connected with this would be the adequate study of Commercial and Industrial Geography.'

"In English the course should certainly include all that Professor Bristol of the School of Education at Cornell has said, and it should also enable the pupil to *read* well. There should be a drill in Composition and Rhetoric so frequent and so exacting that the pupil could state tersely the exact idea he wished to put forth. Further, since in this day each branch of business holds conventions, and since delegates from these go as representatives to state and national conventions, and further, since the Australian Ballot no longer leaves possible the voting of men in herds, is not a knowledge of, and a practice in Public Speaking a vital part of the training in English?

"Absolute *accuracy* in speech and in writing must be preceded by equally accurate *thinking*. Accuracy is demanded by the business

world for less than that may lead to financial disaster; especially is this true if the mistakes are mathematical in character.

"Commercial Arithmetic, in which the fundamental operation receive so pronounced attention that accuracy becomes *habit* and habit begets *speed* in dealing with integers and with common and decimal fractions, will be found the most important subject in mathematics. The application of this rare power to the problems which come up in actual business within the comprehension of the pupil should form the basis of the drill. Schools frequently take a semester for this work but can it be done in less than one year?

"To this should be added at least a year of Algebra and a year of Plane Geometry. A clear insight into the fundamental operations in Algebra and a thorough training in the use of the equation as a machine for solving problems will be of more value than the covering of the subject as it is usually outlined. That class of problems having no foundation in actual experience might better be left as the privilege of the few. In the year of Plane Geometry, the completion of the usual Five Books should not be the goal. Of vastly more worth is the development of the habit of accuracy of statement and the power to make original demonstrations. In this work the pupil can know that he knows and can prove it, a wonderful inspiration.

"Who questions the importance of a knowledge of commercial law? Business men must know how to avoid litigation for without this knowledge fear and uncertainty frequently results in nervous wrecks. Commercial Law in the high school course is not intended to make *lawyers* but to help avoid law suits. The knowledge of *contracts*, for that is what is comprehended in the term *business*, is valuable and desirable to the proprietor, his clerk, his stenographer, and indeed to all. The very fact that *custom* is the foundation of much of the written law, and that back of the custom is a *reason* for its being a custom, and that back of the reason is *common sense*, makes it an inseparable part of the commercial course. The discussion by members of the class of promissory notes, deeds, bills of sale, etc., used to *fix* and *clinch* the principles, will interest and benefit any pupil whether or not he intends a commercial career.

"The typewriter can never entirely dispense with the use of the pen in writing. Sufficient instruction and drill in penmanship to the end that a neat, plain, rapid hand is acquired is, of course, a part of every commercial course.

"Stenography demands *close attention* and inculcates accuracy, yet in most cases it should not be recommended except for those who are to follow it. The great demand for stenographers makes it one of the chief studies asked for. Without a knowledge of typewriting, shorthand would lose its popularity and usefulness. That these two studies should run hand-in-hand for two years meets with the approval of nearly all who believe in commercial education. The operator who can use the *touch method* rapidly and read his notes readily has gained power that can be used in large fields. This is proven in hundreds of cases where the stenographer has become the manager of the business.

"There arise conditions that justify allowing typewriting to one not taking shorthand—which even commend it.

"Bookkeeping, than which no other study demands closer attention and clearer insight, may be taken with profit by any pupil. The keeping of a simple account of one's receipts and expenditures is a habit that leads to saving and prevents family squabbles. The stenographer enhances her value if she knows how to get correct information from the Book of Accounts. If in this course a clear knowledge of the *function of banks* be obtained there will cease to exist a good deal of the prejudice and unjust criticism of this institution, fundamental to the finan-

cial well-being of every community.

"Physical Geography, a treatise on the physical life of the globe, the life that makes possible all of the different forms of life, and hence all activities, should find a place in the course.

"Commercial Geography has been defined as 'a comparative study of the nations of the world, their commercial prominence and their contest for the trade of the world.'

"It has to do with the resources in nature, with industries, the *where* and *why* of their existence, the commerce resulting from their natural distribution over the earth, the necessity of transportation, and communication. It would be as sensible to leave commerce out of the world as to omit commercial geography from the Commercial Course.

"Can one be truly patriotic without a knowledge of the *history* of his own country? Can he appreciate America, his home-land, without a comprehensive knowledge of the history of the United States? Certainly none would agree to have less than a year of U. S. History, with Civics, in which our *economic growth* is analyzed and emphasized. This emphasis will not make the history less attractive or less efficient to any pupil. At least a short study of political economy, how the Nation keeps house, its money system, its labor organizations, its discussions of tariff and free trade, make for a larger commercial intelligence. Commercial History is needed that we may properly understand the present in knowing the past.

"In the United States German is the most widely spoken foreign language. A larger percent of the most enterprising and the most prosperous business men are Germans. Our large cities have an enormous German population; Milwaukee is almost entirely a German community; Chicago, with the exception of Berlin, has a larger population of Germans than *any* other city. The strides Germany is making in commerce, science, and art, will give this language greater importance in the future than it has today. Any commercial course will be greatly bettered if German finds a place in it. Should not there be at least two years of that language in the course?

"This is a mechanical, a scientific age; an age when all life is more or less technical. An age, for example, when not only the manufacturer of a steam or hot-water heating system must know the physical principles of heat transmission (conduction, convection, and radiation) strength and lasting qualities of materials, etc. but also the retail merchant who installs them, and the purchaser as well if he would exercise intelligent judgment in his choice.

"That scientific intelligence of the buying public is becoming more highly developed and more technical will be shown very clearly by an examination for a time of the advertisements of the various manufacturers in the popular magazines and noting the detailed explanation of the physical principles involved in the construction and use of the articles advertised. Take for example, that of our General Electric Company, advertising this new tungsten lamp, and notice that they speak of the increased candle power to be obtained from a lamp of a given 'wattage' as compared with that of the old style carbon filaments. Indeed in this age of the wireless telegraph, aeroplanes without motors (one of which a boy in our own high school has made and which I have seen make a successful flight), vacuum cleaners, and fireless cookers, an age when the farmer lights his house with artificial gas or electricity, has his water delivered through a faucet by compressed air in a pneumatic tank, and drives a "horseless carriage" as well as talks "balanced rations", 'elements of soil fertility' and "bacteria in milk", who is there that would not have this *life* touched at one or more points each day and would have his vision broadened by an understanding of the principles involved? Could one have the breadth of view of the life around him,

could he understand the commercial processes, could he do without the suggestions of improvement in methods in trade and business houses, the knowledge of system and order which this study implants?

"A year of Physics cannot be omitted without vitally weakening the education.

"A study of Physiology and Hygiene, the function of the different organs, and how to keep *well*, is not named last because least important. The use and care of the hand, the nervous system, the ear and the eye, must engage the attention if any kind of work is to be performed. Defects, physical, frequently account for shortage in powers, mental and moral.

"What studies are *important* in a Commercial education—what must we *choose* from the vast field of knowledge to the partial exclusion of the rest?"

Principal Ralph D. Kean, Marshall Township High School, presented the following paper: "What are the Organization Problems Relating to a High School Commercial Course, and How Can they be Solved?"

"The introduction of commercial subjects into high school before a regular commercial department might be established can be, and often is, the foundation for the organization of such a department. Also, without the necessity of a special commercial instructor, commercial work can be introduced and prove a very practical aid to the student who feels himself financially embarrassed and who must very soon support himself. Bookkeeping and typewriting are two such subjects. We have had thorough students in these subjects secure good office positions in our own and larger cities. These subjects will make a good test of a student's business ability and should the student prove a failure in this work the school has saved him the expense of the same experiment in a business college, and therefore the work has proved a real value to this student as well.

"No commercial work should be the dumping ground for the failing student. Better to have no commercial work than to have this true. Neither should the commercial work be a *mere* filler to complete some other course and then be turned over as a necessary evil to the poorest and weakest instructor. Because of the very nature of commercial work it requires and should demand the strongest instructor. When commercial work is given so little consideration and importance as suggested above the class room becomes a mere hot-bed for germinating and breeding carelessness and sometimes very bad discipline. It is far better to give less subtle subjects to the poorer instructor and let the failing student try other classes for a change. We have put this to a test and find it a success.

"When enough commercial work has been introduced to necessitate a special instructor the question of what kind of a course arises. Since so many of our young men go into business it seems a real injustice not to make the course a correlated one of four years in length and give this large majority a thorough, special training. Commercial subjects in the hands of strong instructors are of a highly educative value and should, and undoubtedly will, receive such credit as do other high school subjects.

"This is very essential before such a course can be productive of the best results, for a student desiring business training and education would enter the university conditioned and consequently be retarded in his progress. An eighth grade student might go to a business college and graduate in two years but he is not an *educated* business man. Again,

it is possible for a young man to finish high school and college without the opportunity to take a commercial course, which must be taken afterwards. This however is very unfair to him. Investigation seems to indicate that conditions are such as will warrant the establishing of a strong high school commercial course even if it be at the expense of some other course.

"Some of the larger high schools say they cannot have a commercial course for they cannot compete with business colleges.

"These colleges about the same as guarantee a position when one has graduated from them. We can see how a consolidated course might have this drawback but the four-year correlated course should appeal to many who desire to become well *educated* business men and not office clerks alone. The educated man in whatever field it may be is the one eventually to be in demand.

"The four-year correlated course need not bar a student of limited means from taking purely commercial branches and completing the course in two years. He can enter as a special student in this course as do students in other courses. And if desirable he can be given a certificate to indicate the completion of this work. It has been found that many students who have been attracted by such a two-year consolidated course are glad to take much more work when they have been in attendance for a time.

"In closing I would say that when the commercial department is properly dignified and its dignity sustained there will be a large demand for the graduate from the commercial department of our high schools."

The afternoon session convened at two o'clock, Mr. E. L. Boyer, presiding. Reports of the committees were made. The Permanent Organization Committee felt that there are so many unsettled problems that the best results could be obtained by adopting some definite and systematic plan of action for the next few years.

In the first place, the subjects of Stenography, Typewriting and Commercial Arithmetic have been pressing forward for University recognition for some time past, and there is a report to be presented on these subjects at this Conference.

In the second place, the entire scheme of High School education needs to be thoroughly discussed and standardized. In view of these problems, the Committee makes the following recommendations: (1) That a committee of three on the Correlation of Courses be appointed which shall investigate the following problems: (a) What is an ideal scheme of study for a four years' High School Commercial Course? (b) For a High School which can teach only four or five commercial subjects, what subjects should be included in the curriculum, and how should they be distributed throughout the four years?

(2) That a Stenography, Typewriting and Commercial Arithmetic Units' Committee be appointed which shall report at

the next conference the scope of work that shall be covered for university credit in each subject.

Both recommendations were put in the form of motions and carried.

The Permanent Organization Committee asked for an expression of opinion from the members of the sections concerning the policy of confining the discussions of each meeting to one or two important subjects. The consensus of opinion was that this policy should be continued.

Professor Litman, as Chairman of the Commercial Geography Committee proposed the following definition for one unit's credit in Commercial Geography:

COMMERCIAL GEOGRAPHY UNIT.

"Familiarity with the facts and principles of physical geography is presupposed on the part of the students intending to study commercial geography. This latter course should include the study of (1) The influence of natural factors and forces, such as atmospheric phenomena, land forms, soil, oceans, rivers, and lakes upon the economic life of nations. (2) The character of the natural resources and the extent and the direction of the industrial and commercial activities in different regions. (3) The role of the human factor in present day commercial development as this is exemplified by different degrees of industrial efficiency in various parts of the world; in this connection a study should be made of governmental control, protection and furtherance of commerce. (4) The means and methods of modern land-transportation. (5) Geographic causes leading to the location and the growth of cities. (6) The chief commercial products of the mine, of the forest, of the soil and of the sea; a careful study should be made of a few typical commodities; this study should consider what factors are involved in the geographical distribution of the article, how the raw material is transformed into a finished commodity and how the latter reaches the final consumer. (7) Local industries and commerce. (8) Industries and commerce of the United States; stress should be laid upon geographic influences, the country being divided into regions in accordance with the predominance of certain lines of production in each subdivision. (9) Continents from the points of view of size, coast line, topography, soil, climate, population, products, industries and routes of trade; students should be able to make logical deductions establishing relationships between the physiographic environment of men and his productive work; special attention should be paid to the principal nations of today.

"The instruction should include careful training in the use of maps; students should be able to locate on outline maps the main agricultural, mining, lumbering, fishing and manufacturing sections of the world; the most important centers of population and of commerce, the chief navigable rivers, the main railroad lines, the ocean routes of international trade; they also should locate the deserts; the unproductive areas, and the regions commercially undeveloped, but capable of such development; students should give causes for existing facts.

"Students should be taught the value and the use of publications, issued by our Departments of Commerce and Labor, of Agriculture, etc.;

they should make, as far as practicable, a study of specimens, for which purpose each school should have a commercial museum; they should be able to interpret from a geographic point of view the statistical and other data of modern commerce.

After some discussion the report was unanimously adopted.

Dr. Jay A. Ford, of DeKalb Township High School, as chairman of the Stenography, Typewriting, and Commercial Arithmetic Committee which was appointed to make a preliminary survey of the subject reported that in view of the lack of uniformity in the teaching of the subjects throughout the State, it would not be wise to ask for university credit at this meeting of the Conference, but proposed that the subjects be more definitely defined and standardized before presenting any formal request to the University Senate for entrance credits.

It was moved that the Chairman appoint a committee to investigate the collection of specimens for High School Commercial Museums, reporting on the costs and resources. Motion carried.

It was moved that a committee be appointed to communicate with the State Teachers' Association regarding the advisability of forming a Commercial Section, at their meetings. Motion carried.

The Chairman announced the membership of the Committees proposed as follows:

Permanent Organization Committee:

Dr. Jay A. Ford, DeKalb Township High School, DeKalb.

Prin. E. L. Boyer, Chicago Heights High School, Chicago Heights.

Miss Charlotte VanDerNeen, Joliet Township High School, Joliet.

Mr. John A. Haight, Rockford High School, Rockford.

Professor M. H. Robinson, University of Illinois, Chairman.

Stenography, Typewriting and Commercial Arithmetic Committee:

Mr. O. R. Martin, University of Illinois.

Mr. Alfred George, Kankakee High School, Kankakee.

Dr. Jay A. Ford, DeKalb Township High School, Chairman.

Committee on Collection of Commercial Specimens:

Miss Myrtle Rose, Savana Township High School, Savana.

Mr. W. A. Leonard, New Trier Township High School, Kenilworth.

Professor Simon Litman, University of Illinois, Chairman.

Committee on Correlation of Courses:

Professor N. A. Weston, University of Illinois.

Prin. William Wallis, Bloomington High School.

Prin. E. L. Boyer, Chicago Heights High School, Chairman.

Committee to confer with State Teachers' Association regarding forming of Commercial Section:

Prin. Ralph D. Kean, Marshall Township High School.

Dr. John L. Duncan, University of Illinois.

Mr. John E. Hirst, Springfield.

Miss Fannie B. Porch, Kankakee.

Prin. William Wallis, Bloomington, Chairman.

DOMESTIC SCIENCE SECTION

The Domestic Science Section met Friday morning, 9:00 a. m., Woman's Building, Miss Bevier presiding. The principal topic of the morning, "The time and place for food, clothing and the home in the school curriculum" was discussed by principal G. B. Morrison of McKinley High School, St. Louis, and by Supt. H. B. Wilson of Decatur.

Mr. Morrison first told of starting domestic science for the girls in the Kansas City Manual Training High School sixteen years ago, and his previous visit to Pratt, Drexel and the Miller School, Albermile County, Virginia. At the latter he found orphan girls and boys taken at seven years of age and kept until they had finished the High School course. The girls kept house, made their own furniture and their own clothes.

Domestic Science from different points of view Principal Morrison treated in substance as follows:

(1) Domestic Science from the historical standpoint. Cooking began perhaps with the discovery of fire, and the duty of cooking fell upon the women while men hunted and killed the game. The work was done without science yet the laws of science were applied. It was part of the daily life and done without study; with science absent from the mind, yet done by applying science. Science was unconsciously applied.

(2) Domestic Science from the biological standpoint. The cerebrum is the last part of the body to develop. Evolution is considered a rational explanation of this fact. Cells all work together for one common end. Special organs for special purposes are developed, but even then everything is done for the purpose of nutriment and protection. The schools long planned to exercise cerebral development instead of all-round development. Domestic Science brings us back to our inheritance.

(3) Domestic Science from the social standpoint. The social value of food is recent. The lower animals fight for their food. The brute knows nothing about special feeding. With civilization service becomes graceful, scientific, artistic. There is now no social function without food.

(4) Domestic Science from an economic standpoint. In these days of expense and waste on the one hand and deprivation and squalor on the other, the work in the school does not have enough of buying and selling. Pupils should be taught cost of materials and cost of meals.

(5) From a psychological standpoint domestic science has a new angle. Subjects develop the mind in different ways. Domestic science furnishes the necessary element to the success of the others. Mathematics, language and science develop the cerebrum only. As the moisture is not applied to the petals of the flower to develop the plant but is given to the roots, so the activities of all the parts of the nervous system must be kept alive to develop the whole, and domestic science stands first with this development with the girls.

(6) Domestic science from a pedagogical standpoint. In order to learn anything new it must be added to what is already known, and the new means nothing if there is nothing to base it upon. In the University of California it was decided to accept any pupil upon which they could build, said Dr. Jordan. The girl's experience in housekeeping and living in the home gives her a great deal upon which to build. Physics and chemistry as taught do not assist as they might as the application is too often not made. The student knows the theory of radiation, convection and conduction, but can not explain why heat is applied below the vessel of water to be boiled. Theoretically, physics and chemistry are applied in teaching domestic science, but usually they are not in practice.

In conclusion then, Mr. Morrison said the place for teaching the various phases of domestic science is all the time. As the English teach by spiral, or cycle method, domestic science should be taught all the time, for the constant exercise of the essential means development. But this is theory, work has been specialized. Where then shall the subject be taught? As far along in the course as possible with sewing and millinery first and cooking later.

Sup't Wilson in discussing the place for food, clothing and the home spoke in part as follows:

Domestic Science must justify its place in the course of study from two standpoints: namely, the social service it renders in the community and the personal development which it promotes in the individual student.

That it may render the largest social service, types of work are needed. This is true because students are of different types and because they are in school varying lengths of time. Those who are intellectually and scientifically inclined may be interested in a scientific presentation of the subject. Those of a different type of mind with motor tendencies prominent will be apt to require handling of the subject from the practical and industrial standpoint. Those who are in school throughout the four years will be able to pursue a logical, well organized, extensive course of work. Those who are there for but a year or two should have an opportunity to take work equipping them in the largest possible way in this limited time.

From society standpoint domestic science should give us women in the homes who have better ideas of economy, better taste, and balanced notions in reference to dress, food, the furnishing of the home, the hygiene of the home, etc., and so on.

To the students personally these courses should provide not only valuable information but right ideals of life and of work. The young women taking these courses should come through them with a conception of the dignity of home making and home keeping, and they should go to their life work with more promise of becoming artists as over against the artisans which they must be but for such training.

The time which should be devoted to the domestic science work and to the various lines of work in such a course will depend upon the character of the course and the student to which it is adapted. It will likewise depend upon the thoroughness contemplated in the course of whatever length and adapted to whatever type of students.

I am certain that we are coming to see that the other subjects in the high school curriculum which have a bearing on these courses should be planned to render the service they should. The chemistry course, for example, may very properly give attention to the chemistry of foods and to the chemistry of dyeing or removing stains, etc.

In general discussion, Mr. Morrison spoke of the science requirements in St. Louis. Botany and physiology, $1\frac{1}{2}$ years of physics and $1\frac{1}{2}$ years of chemistry are required of all students. Three days of each week the girls have domestic science or domestic art and two days they have drawing and art.

He said it would undoubtedly be a good thing to have more work than is customary in the grades if the elementary curriculum could be so arranged.

A number of teachers reported on requirements for domestic science and the place in their school for the subject. There is no uniformity in practice.

The program for the next meeting of the American Home Economics Association at Washington, Dec. 27-30 was read by Miss Bevier, President of the Association.

Miss Bevier also explained the plan for raising money for the Ellen H. Richards Memorial Fund, the purpose of which is the "Collection, interpretation and dissemination of the results of scientific investigation in connection with the improvement of daily life."

The afternoon session was called to order by Miss Helen Day of Bradley Polytechnic Institute. In the absence of Miss Colby the discussion of "Grade work as a foundation for high school work" was opened by Miss Treganza of Bloomington. She said that pupils who had had sewing and cooking in the grades were more interested in the high school work because they recognized the connection between work in the high school and that taken previously. She spoke of the importance of grade work as more girls are influenced by it. She said the work in the grades leads

to the appreciation by the girl of her mother and her mother's work. One teacher said that some theory founded on physiology and hygiene should be given in the grades. She also emphasized the importance of connecting school work and the home. Another teacher said the work of the grade must be suitable for two types of girls, those who will have an opportunity for further study in the high school and those who will not. Another expressed the opinion that work suitable for the girl leaving school would form a good basis for the girls going on with school work. The teaching of sewing and cooking in the grades by teachers not specially trained for the work was seriously objected to.

"A sketch of the development of family life" was given by Dr. A. J. Todd of the Department of Sociology. Mr. Todd left the section with the thought that the family is steadily improving and society is growing better.

The report of the executive committee was next as follows:

The work of the executive committee of the Domestic Science Section of the High School Conference for 1910-1911 has been: First, planning the program for the present meeting. Second, considering the place of food, clothing and the home in the high school curriculum in view of making a tentative suggestion, which might be helpful to the principal and teacher until more light on the subject resulting from greater experience in the high schools, is obtained. Third, considering what high school work in food, clothing and the home might suitably be offered as a second unit of entrance credit. Fourth, considering plans for the next year's work.

The committee met in Decatur, Oct. 7. Miss Galt, Miss Day and Miss Pincomb were present.

After studying to some extent the curricula of the high schools in Illinois and to considerable extent the condition of the domestic science work in these schools the committee makes the following suggestions for the placing of food, clothing and the home.

First, if four years (which seems none too much time) be devoted to domestic science, the following arrangement seems most desirable. First year, clothing, drawing and science. Clothing in preference to food because science as a foundation is less imperative. Drawing and art because line and form, design and color are the prime essentials, the very backbone of clothing. Science principally as preparation for food work later, though its applications in the teaching of clothing is not important. Second year, food and science (and drawing if only half time was devoted to it in the first year). Third year, one half year of food, one half year of clothing and science. Fourth year, the home, science, and history and civics or economics. If drawing is not taught in the high school arrangements should be made for it in connection with clothing. Three periods per week for drawing might be arranged as follows:

Clothing and Drawing

Monday	Tuesday	Wednesday	Thursday	Friday
Sewing	Drawing	Sewing	Drawing	Sewing
Sewing	Recitation	Sewing	Drawing	Sewing

Preparation for one recitation and note book work would have to be done outside of class.

Second, if three years be devoted to domestic science the third year of work given above might be omitted and the second year of work offered in the sophomore or junior year, the home remaining in the senior year.

Third, if two years be devoted to domestic science, clothing might still be offered in the first year, and one-half year of food and one-half year of the home be given in the senior year; or in the junior year one-half year of food and one-half year of clothing might be given, the home remaining in the senior year.

Fourth, if one year be devoted to domestic science, the home in the senior year might best be given. This course would include some needle work and construction of articles, planning, preparing and serving meals as well as study of the plan construction, furnishing and care of the house, the care of the individual and the family, and the relation of the home to the community.

It is taken for granted that sewing and cooking in the grades precedes the work in the high school. The committee recommends that at least one-half year of drawing precede or accompany clothing, that at least one year of science precede or accompany food.

Work which might be offered as a second unit of entrance credit the committee defined as follows: First, the two units shall include the three subjects food, clothing and the home, not less than one-half being devoted to each subject. Second, work may be offered for the second unit only when one-half year of drawing has preceded or accompanied clothing and two years of science has preceded or accompanied food and the home.

It seems to the committee imperative to follow this year four lines of work all leading toward the revision of the syllabus. These lines are: first, outlining the work of the grades which the high school can use for a basis; second, continuing the work of finding the best time and place in the school by studying many curricula and the results as far as possible; third, systematically and thoroughly testing the syllabus; fourth, outlining subject matter of the syllabus with suggestions as to method and with reference to sequence.

The plan of the committee for testing the syllabus is to have various teachers of the state take a section, as the one meat, cereal, water supply, care of the family or care of clothing and use the outline just as it is. The teacher would then be able to report how much time is required to develop the subject, how it appeals to the girls, how suitable it is in detail and general plan, and if the references are adequate and suitable. After trying the syllabus as it is, the report as just mentioned together with suggestions by the teacher as to what in her mind should be added and omitted would be most valuable in the revision of our course after another year or two. Data secured in some such scientific manner as this it seems to the committee make the only safe basis for the further development of our course of study.

In the discussion of the report, one teacher suggested giving both clothing and food the first year so the girl dropping out would have had both. Another thought it would be better to give more work in the grades for the benefit of all, then take up the high school food work after a year or more of science has been taken and the student has a different point of view.

Miss Treganza was elected to fill the vacancy in the execu-

tive committee.

During the last few moments Miss Bevier spoke briefly of the Home Economics meeting in connection with the National Educational Association at San Francisco.

The number of high schools in the state teaching domestic science was given by Miss Pincomb as 95 as compared with 71 last year; the number of counties in which there are high schools teaching domestic science 51 as compared with 42 last year.

ENGLISH SECTION.

The third annual meeting of the Illinois Association of Teachers of English was held in The Moot Court Room of the University Nov. 24, 1911. The President, Mr. Mozier of Ottawa was in the chair. After the reading of the minutes of the last annual meeting, the chairman appointed a nominating committee consisting of Mr. McConn, Miss Ruth Moore of Bloomington and Mr. C. B. Richardson of Alton. The session then proceeded to the reading and discussion of papers. The first was the report by Mr. McConn upon the investigation of students' preferences in literature. At the close of the discussion of this report, Dr. Paul moved that a vote of thanks be given Mr. McConn, and that he be asked to continue his investigation with reference to the reading of college freshmen. Mr. W. W. Hatfield of Chicago proposed as a problem for investigation the opinions of high school graduates as to the effectiveness of the high school course in English. A committee was appointed to take up this problem. On this committee Mr. Hatfield, Mr. Mozier and Prof. Clapp were appointed. Mr. James Hosic of the Chicago Teachers' College presented a report upon College Entrance Requirements. This subject was discussed by Miss Rice of Peoria and by Prof. Clapp of Lake Forest. Three delegates, Prof. Clapp, Prof. Paul and Mr. Hatfield, were then appointed to take the matter up at the National Council of the N. E. A. at their meeting in Chicago on Dec. 1. The nominating committee reported as follows:

For president, Mr. J. F. Hosic; for vice-president, Miss Caroline M. Rice; for secretary, E. C. Baldwin.

As members of the executive committee, Prof. G. M. Clapp (chairman) Prof. H. G. Paul, Miss Florence Skippington, Mr. W.

W. Hatfield, Miss Laura M. Tanner, Mr. C. B. Richardson, Mr. W. F. Mozier. The report of the committee was accepted and indorsed.

The meeting adjourned.

E. C. BALDWIN,
Secretary.

MR. MCCONN'S REPORT ON

HIGH SCHOOL STUDENTS' RANKINGS OF ENGLISH CLASSICS

"I am here, as some of you know, to present the results of the co-operative investigation which was undertaken by this Association at its meeting last year—an investigation to which many of you who are present have most generously contributed.

"Perhaps you will allow me to recall the purpose and plan of this study fully to your minds by quoting a few paragraphs from my paper of a year ago, in which I presented the idea in the fewest words into which I was able to condense it.

REVIEW OF THE PLAN

"The aim in compiling this list [of College Entrance Requirements] has been, obviously, to present a liberal, representative selection of English classics of moderate length, and this aim has been excellently realized. Such a selection is, moreover, a thoroughly logical one. Whether it is pedagogical, however, is surely open to question. It takes full and careful account of the subject matter to be presented, but it takes no account whatever of the high school students to whom the presentation must be made. The question is not even raised as to which classics, or what kind of classics, the high school boys and girls like, or can get hold of, or themselves feel to be worth while.

"Our problem then, it seems to me, is clear. The thing that we have to do first is to collect data of an objective character in regard to the tastes of our students. From such data we can hope to deduce criteria that will enable us to select a list that shall take account of our students, as well as of the resources of our literature.

"The plan I wish to propose for collecting such data is as follows: That the teachers of this Association, as many of them as are interested, should take ten minutes in each of their English sections on some day near the close of the present semester [this was the first semester of 1910-11], and ten minutes again in each section on a day near the close of the second semester of this year; that they should write on the black-board a list of the classics studied during the semester about to close; and should ask the students to copy the titles in the order of their preference—putting first in their lists the book which they themselves liked best and felt that they got the most out of, and so on. The students should be asked to sign their names to the lists, principally in order to indicate the sex, and put down their age and high school class.

"If we could get fifty teachers, each having on an average fifty students in English, to take this matter up, we should get 2,500 rankings of the books in the present list by the high school students themselves, with the sex, age, and grade indicated on each ranking.

"The rankings will then be tabulated to show how many times each one of the books in the list was ranked first, how many times second, third, and so on.

"If we should find any book or group of books which was ranked low in a large percentage of the lists, that would certainly seem to indicate that this book or group is open to serious question. We should

have a basis, on the other hand, for including more books of the general type represented by general favorites. In other words, we may hope to have at least something like definite data on which to base a revision of the College Entrance Requirements."

THE ASSOCIATION ADOPTS THE PLAN

Those of you who were present a year ago will remember that, on the motion of Mr. Mozier of Ottawa, our President for this year, the Association adopted the plan proposed in the foregoing paragraphs. At the close of the morning session about sixty teachers, representing some fifty different high schools, handed me their names to indicate their willingness to co-operate in the proposed study.

COLLECTING THE DATA

The plan was carried out exactly as proposed above. About the middle of December, 1910, letters were sent out to the teachers who had handed in their names at the meeting and to a few others whose names were received later in various ways, reminding them of the rankings to be taken for the first semester and suggesting the method which it seemed best to follow. Again about the middle of last April similar letters were sent out, and by the first of July practically all the data were in.

THE RESPONSE GENEROUS

The response to these letters was exceedingly generous—a great deal more so than anybody had dared to expect. You may remember that in proposing the plan I expressed the hope that we might obtain 2,500 rankings of the various books. We actually received more than three times this number. Roughly speaking, there were sent in rankings of books read, in either the first semester or the second semester of 1910-1911, by about 8,000 high school boys and girls of this state and adjoining states.

The first step, unfortunately, in handling this data had to be the throwing out of a rather large number of rankings.

[The discussion of the several groups of rankings that were discarded is here, for the sake of brevity, omitted. The rankings discarded include: (1) those taken in irregular ways; (2) those in which only two books appear (3) those in which more than six books were listed.—Editor.]

With all these subtractions, there were left the rankings of 5,503 students, representing 209 high school classes, and including 21,654 'reactions.'

(The word 'reaction' is used here and throughout the remainder of this paper to mean the ranking of a single book by a single student. For example, a student who ranks a list of four books furnishes four reactions, and a class of twenty students, each of them ranking four books, furnishes eighty reactions.)

TABULATION BY CLASSES

The rankings that remained were tabulated by classes; that is to say, we obtained for each class the list of books read with the number of students who ranked each book first, second, third, etc.

For example, picking out one of the class tabulation sheets at random—it happens to belong to the 123rd class that was tabulated—a class of 32 freshmen, 13 boys and 19 girls—we have the following:

Books Read	CLASS NO. 123			
	No. of Times Ranked.			
	1st	2nd	3rd	4th
Ivanhoe	18	6	5	3
Merchant of Venice	8	9	10	5
Sir Launfal	2	12	10	8
Ancient Mariner	4	5	7	16

A brief inspection of this table will show that the preference of this particular class is indicated by the order in which the names of the books are printed. *Ivanhoe* is easily the first choice, and *The Merchant of Venice* is a clear, though hardly a strong, second. *The Vision of Sir Launfal* has fewer first than *The Ancient Mariner*, but has so many more seconds and thirds that, for the class as a whole, it ranks above the latter—which you will note is placed last by half of the students.

Evidently, however, it is desirable to reduce such a tabulation to a single column of figures, and this was done for the class given in the following manner: Each book was credited *one* for every student who ranked it last; credited *two* for every student who ranked it next to the last, or third; credited *three* for every student who ranked it third from last, or second; and credited *four* for every student who ranked it fourth from the last, or first. On the basis of the foregoing table this gives us the following result, the sums at the right indicating the ranking:

Ivanhoe	$72+18+10+3=103$
Merchant of Venice	$32+27+20+5=84$
Sir Launfal	$8+36+20+8=72$
Ancient Mariner	$16+15+14+16=61$

The tabulation for all of the 209 classes were treated in the same way, and twenty-nine of these class rankings are given and discussed below.

TABULATION BY BOOKS

After all, however, any single high school class is too small and presents, accordingly, too large a 'probable error', to be very significant; and, since hardly any two classes read exactly the same combination of books, comparisons between classes were impossible. A grand tabulation was therefore made of all the lists under consideration *by books*, the limits of the classes being ignored. We obtained, for each book that was represented in the lists, the total number of students who had read it; the number of those reading it who had ranked it *first*; the number who had ranked it *last* (i. e., third in a list of three, or fourth in a list of four, or fifth in a list of five, or sixth in a list of six); and the number who had ranked it *median* (i. e., second in a list of three; second or third in a list of four; second, third, or fourth in a list of five; and second, third, fourth, or fifth, in a list of six).

It seemed well enough to ignore the distinctions among the several median positions. After all, whether a student was ranking three books, or four, or five, or six, the significant expressions of preference were represented, I take it, in the assignment to the first place and the assignment to the end of the list. With respect to the other books in any student's list, the fact of importance was that they had not been preferred as favorite nor yet totally damned, and this fact was equally true for all middle positions—for both the second and the third books, for example, in a list of four. To put the matter in another way, the significance of the assignment of a given book to the second place rather than to the third place in a list of four is clearly very much less than the significance of an assignment to the first place rather than to the second place in the same list; and clearly less, also, than the significance of an assignment to the third place rather than to the end of the list. On the whole, it

seemed to be more accurate, from the standpoint of the essential truth of the results, to ignore the difference among the middle positions than to attempt to take account of them.

We obtained, then, in this tabulation by books, a list of all the classics represented in the 5,803 rankings, with the total number of students who had read each book and the number who had ranked each first, in middle positions, and last.

Here again, as in the case of the rankings by classes, it was clearly desirable—almost necessary, if any definite comparison were to be made—to obtain an expression of our results in terms of a single column of figures—preferably percents.

[The explanation of the method of deriving the percentage is also omitted here in order to save space. This explanation is printed in full in the February issue of the *Bulletin* of the Illinois Association of Teachers of English, copies of which may be had on application to Professor H. G. Paul, Urbana.—Editor.]

The following table shows the ranking, on the basis of percents obtained in this manner, of all the classics which were read by as many as one hundred students. One classic—*Hamlet*—which was read by three fewer than one hundred is included because of the remarkable verdict in its case.

STUDENTS' RANKING OF ENGLISH CLASSICS

No. of classes represented.....	209
No. of students represented.....	5,803
No. of reactions.....	21,684

INTERPRETATION OF THE RESULTS

It is to be admitted at once, at the very outset of any discussion of the following table, that the results there summarized are very rough in their character. Many minor distinctions are overridden when so many varying lists are thus summarily totaled. It is not at all the same thing as if all the books in question had been read by a single group of students of one given high school year, with known proportions as to sex and age.

On the contrary it may be urged that in so large a number—obtainable only by such a summary totaling—the distorting effect of many of these minor differences may be supposed to have disappeared by cancellation. In the almost innumerable combinations of books in the different lists every book was repeatedly compared with every other book; and each book was read under every conceivable condition with respect to year, size of class, sex and age distribution, and the like. Moreover, it seems not unlikely that the importance of some of these distinctions has been exaggerated, because—as will appear from the class rankings, twenty-nine of which are given below—there was actually very little difference in the general trend of preferences between classes of freshmen and seniors, or between classes in which the girls were in a majority and classes in which the boys were the more numerous. Taking class by class, we find the ranking nearly always essentially the same as in the general table given just above, in which, as noted, class limits are ignored. It would appear that the entire high school constituency reacts, roughly speaking, in the same way in this matter.

Nevertheless, I should be the first to decry attaching importance to minor differences in the list of percents. I should say that a difference of five percent in the foregoing table ought not to be considered at all. Probably a difference of ten percent is unworthy of note. But I take it that as between a group of books at the very top of the list and another group at the very bottom we have a clear expression, unmistakably reflecting the thought and feeling of 6,000 of our high school students, and that this rather solid fact is worthy of some study.

Title	Totals	First	Median	Last	Percent
1. Tale of Two Cities.....	679	499	147	33	89
2. Last of the Mohicans...	365	247	94	24	87
3. Ivanhoe.....	1190	677	413	100	83
4. Hamlet.....	97	50	42	5	82
5. Enoch Arden.....	258	74	145	39	81
6. Silas Marner.....	950	472	387	91	80
7. Macbeth.....	657	307	285	65	79
8. Lady of the Lake.....	752	265	386	101	77
9. Merchant of Venice.....	801	304	410	87	74.5
10. Idylls of the King.....	965	353	479	133	73.5
11. As You Like It.....	565	190	264	111	71
12. Treasure Island.....	420	141	191	88	70.5
13. Vicar of Wakefield.....	109	23	76	10	70.5
14. House of Seven Gables..	329	90	180	59	69.5
15. Poe's Tales and Poems..	330	95	154	81	68
16. Sketch Book.....	568	118	359	91	67.5
17. Burke's Conciliation....	664	128	412	124	66.5
18. Life of Goldsmith.....	289	53	145	91	66
19. Julius Cæsar.....	1003	222	522	259	65
20. Paradise Lost.....	129	33	56	40	65
21. Minor Poems.....	440	92	245	103	65
22. Sir Launfal.....	622	153	341	128	65
23. Burn's Poems.....	227	43	142	42	64.5
24. Twice Told Tales.....	115	20	31	64	64
25. Sohrab and Rustum....	715	146	375	194	64
26. Bunker Hill Address....	259	47	129	83	62
27. Farewell Address.....	212	35	123	54	62
28. Cranford.....	105	12	68	25	62
29. Midsu'mernight's Dream	161	21	87	53	60
30. De Coverley Papers....	736	72	347	317	59
31. Iliad.....	341	62	133	146	58.5
32. Twelfth Night.....	357	52	182	123	58
33. Palgrave.....	230	39	68	123	54
34. Chaucer.....	167	16	70	81	54
35. Franklin's Autobiogra'y	221	22	87	112	53
36. Macaulay's Johnson.....	488	39	208	241	52.5
37. Deserted Village.....	195	11	86	98	52
38. Ancient Mariner.....	1075	128	448	499	52
39. Sesame and Lilies.....	312	36	127	149	51.5
40. Essay on Burns.....	337	25	121	191	50
41. Emerson's Essays.....	185	14	56	115	48

ONE OR TWO STRIKING CONTRASTS

I will ask you to glance first at the bottom of the table. Probably your eye will be caught by our old friend, "*The Ancient Mariner*—one of the three books which were read and reported on by as many as 1,000 students. Surely the record in this case is a little pathetic when we consider for how many years and with what enthusiasm we have been compelling practically all our high school students to spend weeks on this book. A little over one-tenth of the students put it first in their lists; nearly one-half put it last—i. e., third in a list of three, or fourth in a list of four, or fifth in a list of five, or sixth in a list of six.

Compare with this one of the other books which was read by more than 1,000 students—*Ivanhoe*. The record is exactly reversed: more than one-half put it first, and fewer than one-tenth put it last.

You may notice, also, in the group at the bottom of the list—next to the end,—the *Essay on Burns* (still “prescribed for study”). Of 337 students who read this classic, only 25 ranked it first and 191—pretty close to two-thirds—put it as far down as they could get it.

Compare with this the book in the group at the top which was read by most nearly the same number—*The Last of the Mohicans*. Again the entry is almost exactly reversed: two-thirds put it first, only 24 put it last.

TWO GROUPS

It seems to me that expressions as clear as these, even with respect to individual books, are important. Obviously, however, a comparison of groups, if two groups could be selected, would be still more instructive.

Let us select our groups on a mathematical basis.* If you will inspect the table you will find that—speaking in round numbers—each of the first ten books, through the *Idylls*, was ranked *first* by from one-third to one-half of all the students who read it, and ranked *last* by only from one-tenth to one-seventh. For the last twelve books in the list, from the *De Coverley Papers* on, the record is reversed. Speaking still in round numbers, each of these books was ranked *last* by from one-third to one-half of all who read it, and ranked *first* by only from one-tenth to one-seventh.

Perhaps the first thing we notice in these two opposed groups is the superficial diversity of the books in each. The first ten books include four novels, but include also three plays and three poems; while the group at the bottom of the list comprises epic, lyric, essay, and autobiography; and within most of these forms, in both groups, widely different schools, methods, or moods, are represented.

It is clear at once, from this diversity, that some of the more careless generalizations in regard to students' preferences are not supported.

For example, the too simple conclusion, that students like best what is the easiest to read, hardly explains 50 *firsts* and only 5 *lasts* from 97 readers of *Hamlet*; or, on the other hand, the condemnation of the *Autobiography*; or—stopping for a moment outside our two groups—the fact that Burke's *Conciliation* ranks practically even with Poe's *Tales*, and *Lycidas* and its companion pieces slightly above the poems of Burns.

What I may call the narrative hypothesis—that high school children care of themselves only or chiefly for narrative—would seem at first glance to receive more support; yet it fails to account for the three Shakespearean plays in the top group, or to explain the fact that six of the twelve pieces in the group at the end are narratives—including *Iliad* and Chaucer!

Likewise, the notion that the books that have been a good while in the lists, that have come to be well edited, with which teachers have had experience, are the ones that succeed, is not quite consistent with the presence in our little inferno at the end of the *De Coverley Papers*, *The Ancient Mariner*, and the essays on Johnson and Burns.

THE PRINCIPLE

Is there, then, any characteristic that is common to these ten diverse books at the top? Is there a common characteristic to be found in the twelve books of the other group? And are these two characteristics by

*Attention is called to the fact that in the selection of these groups—and it is on these that the argument really turns—the column of percents is not taken into account. The figures considered in the case of each book (total number of readers, number ranking it first, and number ranking it last) are merely totals, obtained from the original data by simple counting, having undergone no mathematical transformation.

any chance antipodal? If it should prove to be so, surely in view of what these groups represent, we have our finger on an important principle.

It seems to me that such a principle does emerge, and that it may be stated as follows:

That the popular books in this list are uniformly books containing *vivid and dramatic presentations of human life, with strong ethical imports* while the books that are distinctly disliked are those in which the primary appeal is esthetic, stylistic, which convey their message indirectly through their beauty or humor, or which present human life, not with bold plainness, but delicately, lightly, subtly.

I believe that all will agree at once that the description of the popular book just given fits every book in our first group of ten. It may be objected, however, that these books make an esthetic appeal, also, no less perhaps than do the books that are condemned in the other list. That, I take it, is not the point. The point is that in the first group all that is merely esthetic, all the pure beauty, the delicacy, the subtlety, may be *subtracted*—as it is for the high school students, whose nature has not developed to the point where these things interest him,—and still leave a vivid picture of human life, with its "moral", its moving lesson, to appeal to a boy or girl who is entering upon adolescence and beginning to be interested in human relations and ethical principles. But in the case of *The Ancient Mariner* or the Palgrave lyrics, if you shut your eyes entirely to the mere beauty—or haven't your eyes open to it yet, as is the case with the high school youngster—what is there left? Wouldn't you put them last yourself?

But it may be further objected that not all of the books in the bottom group are like *The Ancient Mariner* and Palgrave—that the *Iliad*, for example, and Franklin's *Autobiography* present vivid pictures of life, with moral import enough for anybody. This is certainly true. And yet in the *Iliad* does the story, the recital of adventures really appeal even to us as the story of Shylock, or Silas Marner, or Sidney Carton appeals? May be the mere story of the *Iliad* did make such an appeal to us once—when we were little children, eight or ten years old. But our high school students have left that stage behind, too. Is it not really the manner of the telling, the beauty of simplicity in the naked narrative, that charms us in the Greek epic? And in Franklin—are the bald facts of rather prosaic years the things for which we read, or is it really the bold directness of statement that holds us? But this pleasure in simplicity, in the classic style, is the last reach of esthetic appreciation. Your students will read much of their Palgrave with real enthusiasm and will recite *The Ancient Mariner* in their sleep before they can enjoy the *Iliad* again, or Franklin—enjoy them as we enjoy them. And I believe that something of the same sort will be found to be true of every book of those twelve at the end of the list.

I do not wish to do more than to suggest this interpretation and ask you to look over the tables bearing it in mind. The primary object of this paper is, of course, to present the bare facts collected from the data which the members of this Association co-operated in assembling.

THIRTY INDIVIDUAL CLASSES

Below are given, by way of supplement, twenty-nine class rankings such as are described on page 6 above. These twenty-nine lists have been selected mathematically, being all the lists in which the number obtained for the favored book was as high as 100 (together with two lists headed by 98), and in which the last book had one-half as many points, roughly speaking, as the favorite, or less. It was considered that a class too small to give one hundred points to its favorite book was too

small to be significantly, separately considered; and that where the number of points assigned to the last book in the list was much over one-half as large as the number assigned to the first book, the ranking was too indecisive to be significant.

It will be noted, on inspection, that the principles of preference deduced above from the general table seems to be confirmed over and over again, almost without exception, in these twenty-nine rankings by individual classes. It is particularly interesting, I think, to see classes of every high school year and of the most varied sex proportion reacting with such uniformity.

RANKINGS OF INDIVIDUAL CLASSES

1. <i>Sophomore class: 40 boys, 47 girls</i>	
Tale of Two Cities.....	102
Vision of Sir Launfal.....	65
Ancient Mariner.....	53
Sir Roger de Coverley.....	44
2. <i>Sophomore class: 28 boys, 33 girls</i>	
Tale of Two Cities.....	137
Julius Cæsar.....	96
Ancient Mariner.....	70
3. <i>Freshman class: 45 boys, 64 girls</i>	
Last of the Mohicans.....	258
Merchant of Venice.....	252
Ancient Mariner.....	144
4. <i>Freshman class: 49 boys, 43 girls</i>	
Last of the Mohicans.....	122
Treasure Island.....	89
Vision of Sir Launfal.....	61
Ancient Mariner.....	48
5. <i>Sophomore class: 20 boys, 20 girls</i>	
Ivanhoe.....	160
Enoch Arden.....	109
Sohrab and Rustum.....	89
Ancient Mariner.....	71
6. <i>Freshman class: 22 boys, 21 girls</i>	
Ivanhoe.....	157
Lady of the Lake.....	116
Julius Cæsar.....	97
Ancient Mariner.....	61
7. <i>Junior class: 23 boys, 25 girls</i>	
Ivanhoe.....	171
Idylls of the King.....	148
Irving's Life of Goldsmith.....	97
Macaulay's Life of Johnson.....	65
8. <i>Sophomore class: 43 boys, 45 girls</i>	
Ivanhoe.....	166
Idylls of the King.....	114
Sir Roger de Coverley.....	77
9. <i>Sophomore class: 10 boys, 23 girls</i>	
Ivanhoe.....	126
Lady of the Lake.....	91
Burns' Poems.....	72
Carlyle's Essay on Burns.....	41
10. <i>Freshman class: 38 boys, 39 girls</i>	
Ivanhoe.....	192
Lady of the Lake.....	163
Twelfth Night.....	91

11.	<i>Freshman class: 23 boys, 7 girls</i>	
	Enoch Arden.....	101
	Sir Launfal.....	89
	Julius Cæsar.....	85
	Treasure Island.....	44
12.	<i>Sophomore class: 14 boys, 15 girls</i>	
	Silas Marner.....	98
	Idylls of the King.....	71
	Macbeth.....	55
	Essay on Burns.....	33
13.	<i>Freshman class: 18 boys, 31 girls</i>	
	Silas Marner.....	139
	Twelfth Night.....	84
	Iliad.....	71
14.	<i>Senior class: 20 boys, 30 girls</i>	
	Silas Marner.....	123
	Milton's Minor Poems.....	98
	Golden Treasury.....	49
15.	<i>Sophomore class: 15 boys, 21 girls</i>	
	Silas Marner.....	140
	Sir Launfal.....	84
	Ancient Mariner.....	71
	Sir Roger de Coverley.....	65
16.	<i>Junior class: 23 boys, 20 girls</i>	
	Macbeth.....	127
	Milton's Minor Poems.....	74
	Sesame and Lilies.....	69
17.	<i>Junior class: 8 boys, 18 girls</i>	
	Macbeth.....	95
	Milton's Minor Poems.....	65
	Life of Johnson.....	56
	Emerson's Essays.....	44
18.	<i>Sophomore class: 19 boys, 26 girls</i>	
	Lady of the Lake.....	131
	Old English Ballads.....	73
	Sir Roger de Coverley.....	72
19.	<i>Junior class: 18 boys, 22 girls</i>	
	Merchant of Venice.....	108
	Iliad.....	90
	Essay on Burns.....	47
20.	<i>Junior class: 13 boys, 19 girls</i>	
	Merchant of Venice.....	103
	Marmion.....	93
	Midsummernight's Dream.....	56
	As You Like It.....	54
21.	<i>Junior class: 15 boys, 34 girls</i>	
	Idylls of the King.....	129
	Julius Cæsar.....	101
	Sesame and Lilies.....	58
22.	<i>Junior class: 13 boys, 33 girls</i>	
	Idylls of the King.....	108
	House of Seven Gables.....	98
	Sesame and Lilies.....	59
23.	<i>Junior class: 14 boys, 17 girls</i>	
	Idylls of the King.....	136
	Macbeth.....	102
	Bunker Hill Oration.....	79
	Life of Johnson.....	66

24. <i>Sophomore class: 40 boys, 52 girls</i>	
Idylls of the King.....	297
Sir Roger de Coverley.....	247
Ancient Mariner.....	244
Life of Johnson.....	137
25. <i>Freshman class: 47 boys, 59 girls</i>	
Vision of Sir Launfal.....	245
Iliad.....	196
Sketch Book.....	185
26. <i>Junior class: 47 boys, 29 girls</i>	
Burns' Poems.....	154
Golden Treasury.....	136
Essay on Burns.....	103
Burke's Conciliation.....	76
27. <i>Freshman class: 46 boys, 24 girls</i>	
Dog of Flanders.....	104
Marmion.....	79
Iliad.....	52
28. <i>Junior class: 9 boys, 44 girls</i>	
Ben Hur.....	98
Tale of Two Cities.....	74
Ivanhoe.....	59
Scarlet Letter.....	44
Vicar of Wakefield.....	28
29. <i>Sophomore class: 33 boys, 39 girls</i>	
Silas Marner.....	167
Sohrab and Rustum.....	153
Twice Told Tales.....	85

PRACTICAL CONCLUSION

The writer has been asked, by persons who seemed disposed to grant that the principle of preference stated above is more or less conclusively established and probably true, whether or not he would himself care to act upon it by dropping from our lists of reading some of the books in our bottom group. Such a question carries us, of course, far beyond the scope of a paper like the present which aims merely to give certain facts in regard to the expressed preferences of a group of students and to suggest a possible interpretation of the results. Granting both the facts and the interpretation, the cue for action is still far from complete. Under certain theories of formal discipline and educational values, the logical conclusion would be to drop out all the first ten books and to use exclusively the unpopular kind. As an expression of personal opinion merely, the writer would reply to the question asked that, from his own experience as a teacher and his memories of his high school days, he believes that a taste for reading and a growth of appreciation proceed more readily from books in which the student feels some interest than from books which he actively dislikes; and that, therefore, in a short and crowded course, when only a very little can be read, the principle of preference should guide to a considerable extent. In other words, if I were myself at the present time in charge of a high school English course, I should drop out the books in our lower group, and some others like them—i. e., *books characterized by a predominance of the purely esthetic in their appeal*,—and should use mainly books having the general characteristics common to our ten favorites—*vivid, dramatic presentation of human life, and strong ethical appeal*.

There is no danger, I presume, so long as we confine our lists to books that are literature, of including any piece that will not afford enough in the way of beauty, style, and the like, to supply the needs of

any nascent esthetic taste that may develop in precocious individuals during the high school stage. Surely such a taste is more likely to be aroused and developed in connection with a strong interest, of the kind already natural to the student, in a moving human story, than by administering strong doses of beauty, given "straight" as it were, in the form of loathsome dryness—for "dry" is the comment gratuitously added perhaps a thousand times, in the lists on which this paper is based, to the books of the class represented in our bottom group.

TWO PROPOSALS FOR AN INVESTIGATION TO BE MADE BY THE ILLINOIS
ASSOCIATION OF TEACHERS OF ENGLISH,
BY W. W. HATFIELD.

There is certainly no dearth of problems confronting the high school teacher of English. Many of them are suitable for this association to investigate if time and money at our disposal would allow. Of the two which I have selected from the many you will choose one or reject both, as you think best. You ought not to let fear of hurting my feelings interfere with any criticism you may think should be made.

The first proposal is to test the efficiency of our present instruction in composition; to find out, if possible, whether our present courses really meet the students' needs, or are only pretty theories. Not to give our children a logically complete training, but to fit them to meet the demands which their social and business worlds will make upon them, should be our concern. Whether we are so fitting them, none of us know.

We might find out how nearly we are succeeding in this simple but all-important matter by asking our high school graduates of from one to four years standing how our instruction had proved helpful in their lives, and wherein they had felt it to be insufficient. The questions might be but two or three and general in character, or they might be quite detailed, asking whether the difficulties arise in writing or in speaking, in grammar or in vocabulary, etc. If you decide to make this investigation, you can easily frame the questions afterward.

The greatest difficulty in this connection would be the expense. Such a questionnaire conducted from a single center would cost at least five cents for each set of answers obtained. Such an expense this association cannot assume. If, however each high school will see that we secure 5, 10, or 20 replies from its graduates, the expense will be slight and so widely divided that no one will feel it. You alone know whether you are willing to do this. I hope that when I have finished, you will express yourselves quite freely about the matter.

The second proposal arises from two common laments: that we are overburdened with the correction of papers, and that our composition teaching is ineffective. Is there any remedy?

Some of us feel that we have found at least a palliative for these evils in doing much of our drill work in composition orally. I do not mean giving time to the mechanics of speech, important as they are; nor do I mean teaching public speaking, as that term is usually understood. I mean making oral a large part of whatever exercise we use to make paragraph unity and the proper sequence of tenses something more than mere principles in the text. Too many of our teachers now make nine-tenths of such drill drudgery to themselves and their pupils because they insist upon having it on paper. The investigation which I am going to propose should prove to these the uselessness of so much hard work, and at the same time furnish the oral enthusiasts a hint as to how far it is wise to carry their hobby.

Let me state quite briefly three arguments for the oral drill.

1. The fact that the whole class hears and may be entertained by the speaker gives him a motive for doing his best. He does not feel that it is "just for the teacher", and that mistakes may be corrected well enough after the red ink has been applied, and that it would be a waste of gray matter to make his composition interesting. If the topics are judiciously assigned he feels that he is telling a new and interesting thing to his own social group. This motive vitalizes the whole process.

2. The corrections of mistakes and the constructive principles applied in criticism are brought before the whole class at once. Thus, though the teacher may actually review fewer themes, the pupils get more instruction.

3. Such drill is, moreover, in the medium of expression which we all use most. Few of our graduates will ever write anything but letters; they will all talk a great deal every day.

Here is the crucial point. If we find that proficiency in speech carries over—transfers—into writing more than proficiency in writing carries over into speech, there can be no doubt of the wisdom of availing ourselves very largely of the easier, oral method to fix many habits of correctness and good form in expression.

To test this matter of transfer, I propose that you use parallel assignments in oral and written work, judging them by the same standards. Let both be prepared at home, so far as collection and general arrangement go. Let the first one be written out—not copied from a paper prepared at home,—and checked at night for from one to three kinds of grammatical errors. Each teacher should be left to choose his own sorts of error in order that he may pick out those which will be made by a majority of his class but not by all. Let the second assignment, after the same preparation, be given orally, the teacher checking each individual for the same errors as in the written work. Individual records in both cases would be necessary.

If the same person makes mistakes in speech which he avoids in writing, it is clear that our oral work deserves more emphasis than it now receives. If, more than that, he does not make any mistakes on paper which he avoids in speech, we shall feel justified in using a very large amount of oral drill.

These, then are my two suggestions: 1. The questionnaire to determine how well we are fitting our pupils for the writing and speaking they will need to do; 2. The two-day test to determine whether habits of speech carry over into writing more than habits of written expression carry over into speech.

GEOGRAPHY SECTION

The Geography Section of the High School Conference met in Room 247, Natural History Building, at 10 a. m., November 24, 1911, Professor C. W. Rolfe, presiding. The section was addressed by Professor R. H. Whitbeck of the University of Wisconsin, whose topic was "High School Geography: What Shall It Be?" The following is an abstract of his address:

The trial of the new type of physical geography recommended by the Committee of Ten in 1893 has not proved wholly satisfactory. The proportion of high school students studying physical geography has

steadily declined in recent years. This is also true in the case of the other physical sciences. This may or may not indicate dissatisfaction with physical geography as a first year science. It is evidently true that many school principals are not satisfied that physical geography should be retained as a required science in the first year of the high school. A so-called elementary science is being urged as a substitute. There seems to be a widespread feeling that the results obtained in the teaching of physical geography are not as good as were expected. By many it is believed that the emphasis placed by most modern textbooks upon land forms and physiographic processes has been carried too far. It would seem that many of the topics which are presented in elementary textbooks for high school use ought to be reserved for treatment in college. The study of such topics as dismembered rivers, antecedent rivers, shifting divides, penepains, and a large number of other topics belong to the more advanced phase of the subject, and are not of general interest to young pupils; they belong to a purely academic classification, not met with in any of life's practical relations and hence belong more properly to the college phase of the subject than to the high school phase.

Physical geography as a high school study would be improved by a careful elimination of the less practical or more technical phases of the subject, and the introduction in their place of geographical information of greater practical use. Under present conditions we are teaching pupils in physical geography a great many things about which they never hear and probably never will hear, excepting in a class room. On the other hand, we are not teaching them some of the things in geography about which they will frequently hear and frequently read in their daily lives.

No one who is familiar with physical geography as it is taught in most high schools believes that it is so taught as to be of any practical disciplinary value. So little field work is done, and so little valuable laboratory work is done that the expected disciplinary training has not materialized. Aside from the few exceptional schools where trained teachers are employed, high school physical geography is almost entirely a textbook study. The whole situation reduces itself to this: a considerable proportion of the subject matter now taught is of academic value only. It is not so taught as to give any considerable degree of scientific training. Pupils are not introduced to the scientific methods of thinking. They simply study *about* land forms, the ocean, the atmosphere, and physiographic processes from a printed book. That this is, on the whole, proving unsatisfactory to high school men is evidenced by the present movement to substitute something more useful for high school geography.

What the high school courses need is not the elimination of physical geography from the curriculum, but a revision of the course. There should be more geography of a useful kind taught. Every educated person, no matter what his calling in life is to be, needs to know and is expected to know something about the great nations of the world, their industries, and commerce and place in the world's activities. Every educated person is expected to know, at least in a fairly accurate way, where the chief nations are located, a few of the great cities which they contain, the lines of industry in which they are prominent and something about their natural resources, their elements of strength and their relations with our own country; some knowledge of the location of great rivers, of important mountain ranges, of large cities, and commercial waterways. A reasonably correct knowledge of the resources and industries of our own country is expected, as well as some knowledge of the limitations and possibilities of the different sections of the United States. In short, geography is responsible for giving pupils an understanding of the geographical basis of our industries, commerce, national

expansion, and national ambitions, as well as a knowledge of the physiographic processes which have modified the surface of the land, and, second, it is responsible for giving pupils a knowledge of the location of the really important places, nations, and natural features of the earth.

The paper was discussed by Mr. Clem, Mr. Ford, Mr. Cady, Mr. Kirk, Dr. Rich, Miss Weller and others. Professor Clem, of Chicago, discussed the plan proposed in the Illinois Course of Study.

Professor Rolfe then submitted to the teachers present the question of the permanent organization of the Geography Section. It was moved by Mr. J. T. Kirk of Toulon that a Geography Section be organized and that Dr. J. L. Rich be made permanent chairman with instructions to appoint an executive committee consisting of three to five members. Motion seconded by Professor T. E. Savage. Carried. Moved by Professor Savage that Mr. Kirk be elected permanent secretary. Seconded by Mr. Cady. Carried. The following executive committee for the coming year was chosen: D. C. Ridgley, State Normal School, Normal, Illinois; Fleming W. Cox, Robinson Township High School, Robinson, Illinois; Harry Clem, Marshall High School, Chicago, Illinois, and Miss Annie L. Weller, State Normal School, Charleston, Illinois.

MANUAL ARTS SECTION

This section was presided over by W. T. Bawden, Assistant Dean of the College of Engineering.

The early part of the session was given to demonstration of work under the syllabus for first year exercises in wood work. The first was by Clarence Bonnell, of Harrisburg, who gave a review of fundamental tool processes. He showed that high school freshmen are generally inaccurate of hand and eye, and contended that slowness in the first group makes for speed in others. Drawings should be made of each piece.

A. P. Laughlin, of Peoria, continued the discussion. He emphasized the need of mastery of each process taken up. Boys at this stage are willing to do their best to master technique.

Demonstrations on the Mortise and Tenon Joint were given by George A. Todd of Kankakee, and Director A. C. Newell of the State Normal University at Normal.

An interesting discussion and a number of practical questions resulted.

The principal paper of the morning was on "The Sanctions of the Manual Arts," by Professor L. D. Coffman of the State Normal School, Charleston. After reviewing the subject historically Professor Coffman undertook to support four theses which he presented in the order indicated by the following as abbreviated from the original paper:

"The first thesis to which I wish to direct your attention is that out of the stresses and strains of these new situations, out of the new social and economic point of view were born the sanctions of the manual arts, and I wish also to show in connection with this that as a rule the manual arts were introduced into the schools through the operations of forces and agencies outside the established public school system, that groups of progressive people recognized the necessity of providing instruction to meet the new situations long before the teachers in the schools were willing to assume the burden of it.

"Drawing, although fostered by private funds for almost three-quarters of a century, did not get a sufficient popular sanction to secure for it a permanent place in the curriculum until the last quarter of the last century when it became intimately associated with an economic value, but even after its introduction emphasis was placed on its mechanical and formal aspects.

"Many agencies were instrumental in creating a favorable public sentiment, but perhaps the European visits of American philanthropists and educators, men who were interested more in education as a process of social adjustment than in the details of the daily school room routine—had as much initial influence as any other thing. These men continuously directed attention to the utilitarian value of Drawing and Designing.

* * * * *

"The First International Exposition held in London in 1851 served to focus the attention of the English upon drawing and design, as their exhibits were noticeably poorer than those of the continental workers. It also served to give wide publicity to the value of "Art as an Important Branch of Education," in this country. The manufacturing interests using this as their shibboleth succeeded in inducing the Legislature of Massachusetts in 1860 to make drawing and designing a permissive study in the schools. This has almost invariably been the order of introduction of every subject. The movement is begun by outside forces; these succeed in creating a powerful enough public opinion to secure permissive instruction, and finally after a rather uncertain period of experiment instruction is made obligatory. It is always dangerous for one to be a supporter of the new subject during its transition or permissive period, for then he is looked upon as a faddist and extremist. Practically every one of the early great teachers of drawing lost his position before the instruction in the subject was required.

Attention was again directed to the economic aspect of the subject in 1867 at the time of the French Exposition. The industrial leaders of Massachusetts were again impressed and aroused to activity. And again they came to the legislature, this time in 1869 with a petition, a part of which I quote:

TO THE HONORABLE COURT OF THE STATE OF MASSACHUSETTS. Your petitioners respectfully represent that every branch of manufacturing in which the citizens of Massachusetts are engaged, requires in the details of the processes connected with it, some knowledge of drawing and other arts of design on the part of the skilled workman engaged.

'At the present time no wide provision is made for instruction in drawing in the public schools.

'Our manufacturers therefore compete under disadvantages with the manufacturers of Europe for in all of the manufacturing countries of Europe free provision is made for instructing workmen of all classes in drawing.'

'The economic value of drawing was apparent throughout the petition. For the first time in the history of the subject there was a class of people back of it powerful enough to generate a pressure that could not be withstood. The outcome of this petition was a law in 1870 which provided for free instruction in industrial and mechanical drawing in the public schools and which made it compulsory for pupils over fifteen years of age in cities of more than ten thousand inhabitants. Thus it is clear that drawing did not get its sanction from the business or commercial interests but from the manufacturers. Its sanction was not aesthetic, but intensely practical. Primarily it was not to make painters but to instruct in construction and design. It was originally intended to minister to the needs of a special class.

'Manual training has had a somewhat similar history. Between manual training and drawing there has always been a close relationship. Work in drawing leads naturally to the construction of models to draw. Drawing and design were supposed to add to the qualifications of a good mechanic and it was but a step from this notion to that of desiring instruction in the trades and handicrafts. Manual training was sometimes spoken of as 'realized drawing.'

'The expositions of 1851 and 1876 called attention in a most emphatic way to the possibilities of using industrial art as a means of cultivating ability. It was expected that instruction in it would greatly aid us in our struggle for industrial supremacy. These expositions supplied new impetus to the movement for manual training, which had already been under discussion.

'Comparatively nothing was done in training in technical education until after congress passed the Morrill Act in 1862 which distributed 13,000,000 acres for the establishment and maintenance of agricultural and mechanic arts colleges. These colleges furnished the incentive for the secondary manual training schools of a private character and for courses in manual training in the public schools already established. The Worcester Free Institute opened its doors in 1868 and the St. Louis Manual Training School in 1879. However it was not until 1884 that Baltimore opened the first public manual training school; the school committee of Baltimore petitioned for its establishment on the ground that many pupils were leaving school 'destitute of means of earning a livelihood,' that they were unable to 'apply the principles taught them to practical advantage in life and that they should fit them as quickly as possible for self-support.'

'Economic factors did not furnish the only background for a popular approval of manual training. Other forces quite different as to nature but not as to result, were at work. There were groups of philanthropic and humanitarian workers in the sixties and seventies who desired to alleviate those conditions that brought distress under the new social regime. They were interested primarily in that great mass of humanity that was engaged in the mere struggle for existence.'

'The fundamental purpose of most of these humanitarian workers

was to protect society in general rather than to increase the vocational efficiency of any class of workers. They wished to make citizens rather than workmen. Such private and philanthropic organizations as Children's Aid Societies, charity schools, and kitchen garden associations fostered this idea and all of these made attempts to get sewing, domestic economy, designing, modeling, simple carpentry and the use of tools on the regular program of the school without public expense.

"The response to these two forces or sanctions, one economic and special in its application as it was fostered by the manufacturing interests and the other social and general in its application as it was fostered by philanthropists, was nowhere immediate nor complete."

"In the case of manual training there were certain forces operating within the school that made a favorable background for it, chief among which was the kindergarten movement which had considerable to do in cultivating an auspicious attitude on the part of the teacher of the lower grades. Froebel's doctrine of self-activity made all advocates of it respond to any form of instruction that afforded means of expression. But even this spirit and attitude was tried out first in schools independent of the established school system. The ideal was exemplified in the "workingmen's school" which was fathered by the Ethical Culture Society of New York City in 1880. The methods and policies of this school are outlined in the early reports of Felix Adler. This school and others of like character did not provide manual training for the older pupils. The "occupations" of the kindergarten were adopted by manual training, and the ideas were thus welded. The kindergarten and the manual training school were evidences of the same movement, but they affected education at different points in the line. Their sanctions and purposes at the beginning were wide apart; the former wished to train all of the powers of the mind, to make for a democracy of the intellectual faculties instead of an aristocracy as the traditional reflective and assimilative forms of education had done; it looked upon any kind of physical or manual skill as really being the outer expression of an inner or physical skill, while the latter directed its attention to the outcome of the process it sought economic efficiency and was encouraged by the industrial classes and the humanitarian organizations. The former considered the function of the instruction or the mental results while the latter considered the value of the instruction or the social outcome.

"The same sanctions were back of domestic science that were back of manual training. The following quotation from a school report of 1882 shows the prevailing point of view. The arguments adduced in support of the measure were: That the teaching of sewing is greatly neglected in a large number of families in the community, especially among the poorer class; that this ignorance is one cause of the unthrif and ragged shiftlessness of many homes; that it prevents many girls who wish to go out to service from obtaining any except the lowest places; that it increases the cost of living to the poor; because they are not able to repair their clothing that untidiness, which is its consequence, breaks down self respect."

"Long before this recommendation became effective, in fact, in 1870 a special committee on industrial schools of Boston presented a rather elaborate argument for this training. Among other things they said that many girls leave school wholly unqualified to obtain their living in any employment that requires special skill, that many of them could not get their support by plain sewing; that in connection with their intellectual training something should be taught that has a direct bearing upon practical life, that the training in vogue in the schools does nothing to raise labor in public estimation.

"Before these recommendations could be put into practice, instruction in domestic science was permissive in Boston. But before this or-

curred there was a period of experimenting and the building up of a favorable public sentiment. The Kitchen Garden Association perhaps accomplished more in the publicity movement than any other private organization, unless it perhaps be the New York Industrial Association. The subject was not given a trial in the schools until a large minded, generous hearted woman came to the rescue with a contribution of personal funds thus affording another illustration of the dependence of the school upon the generosity and enthusiasm of private citizens in connection with the extension of the curriculum.*

"This brings me to my second thesis, which is another of the significant generalizations belonging to the field of social psychology. It is that these newer subjects were made a part of the curriculum in larger cities before they were made a part of the curriculum in the smaller cities, and that they were made a part of the curriculum in the smaller cities before they were made a part of the curriculum in the rural districts. One could demonstrate as a corollary to this that they appeared in the east before they appeared in the west. This generalization is based upon the well known sociological fact that the curriculum increased in flexibility, that is in a variety of appeals, in direct proportion to the heterogeneity and the massing of social groups. Large cities have always been radiant points for the imitation of conventions. It is little wonder that the spread was most rapid to and in those urban communities that were most industrial in character. The spread of practice to be sure was comparatively rapid. The currents of imitation set in from the large to the smaller places and the ideas and practices which found footing there filtered down to the more strictly rural districts with their homogeneous stable population. New ideas in regard to the curriculum homogenous stable population. New ideas in regard to the curriculum and new practices tend to appear earlier in the cities and to be clung to or continued longer in the country.*

"My third thesis is that the school teachers, because of their traditions and conservatism due perhaps more or less to their bookish and cloistered, monastic life, stood out against the introduction of these newer subjects on the ground that they were not cultural or would interfere with the 'regular studies.' Teachers were afraid that children would waste their time or indulge in the practice for pleasure only. Teachers said the 'Drawing was always an amusing exercise for children, and superintendents frequently said they thought teachers have allowed it to become too exclusively an amusing exercise.' Some suggested that drawing be used as 'Busy work.' When it was introduced into the Boston Schools in 1831 the opposition gathered such strength, and that opposition was the opposition of the teachers, that within two years it was powerful enough to cause the elimination of the subject from the curriculum and to bring about the discharge of the teacher. This is but a sample of what occurred in other large cities about this time.

"The attitude of teachers toward the manual training movement was summarized by Superintendent Compton of Toledo in the following language: 'The worst foes of industrial education are those who ought to be its best friends, and they are among the teaching force of the country—they would like to remain monarchs of all they supervise, and manual work seems like an encroachment upon their absolutism and self sufficiency.*

"The arguments teachers advanced for their opposition do not seem novel to us today. They said that the curriculum was already overcrowded, that the fundamental studies were not receiving their fair share of attention, that the teaching force overworked, that teachers were not trained to give instruction in the new studies—a fact, no doubt, more or less true; and finally they said that the new studies smacked too much of the practical; that they were not sufficiently cultural. It is no

wonder that when new studies were forced in, they were neglected. It was not until heavy obligations were imposed upon the teachers that they made the necessary effort to properly discharge their duty.

"It is interesting to note that in every case whether it be drawing, manual training or domestic science the crust of conservatism and the inertia of the teaching population were finally broken through. Public opinion created by special groups to secure public instruction to conserve some public utility not heretofore provided for by the established and traditional curriculum, had its way. This is the almost invariable history of the enrichment of the curriculum.

"The fourth thesis is that after each of these subjects became a part of the curriculum, the teaching force ignored or forgot the reasons that brought about its introduction, and contended for its retention on the ground of its mind training value. 'The traditions of the school were such that it seemed necessary to look for some occult educational value in order to give sanction for their presence in the school room.' The demand for the subject was not often considered in the light of its origin, but in the light of what particular faculty it would train.

"Drawing was not taught to make finished draughtsmen but to train the judgment and secure attentive observation. It was regarded as a mode of expressing thought and it must therefore be cultivated as a means of mental development.*

"The case of manual training is not any different. A purely intellectual value was placed upon it so that it would not conflict with the intellectual traditions of the school.*

"The notion was not that manual training would help special classes but that all would be educated through manual training. The platform of the humanitarians and the utilitarians was completely changed for one of purely educational reform.

"Domestic science was justified on intellectual grounds in the same way. Let a typical quotation or two suffice: Every sewing lesson is a positive objective lesson of the most excellent description, because it combines so many points of instruction. It trains the sight to accuracy of observation, and the touch to nicety of manipulation. It calls the perceptive faculties, those of form, place, order, color, into active play and drill. It moreover puts the inventive faculties into profitable activity.*

"It must be clear from the foregoing arguments and facts that the public schools after all are but the plastic instrument of society and that they are played upon now by one force and now by another. Theoretically, the materials of education at any one time constitute the registrations of public opinion of that time. Actually of course, this is not true as materials are often retained long after they have lost their use, but always under the delusion that they are still socially serviceable.*

"No subject has come in which has not had for its immediate purpose the satisfaction of some human want, some utility. In practically every case, the subject introduced was designed to instruct a special stratum of society, but under the philosophizings of the school master its purposes were diverted and changed so that they ministered to all classes. Outside the school they were utilitarian; inside the school they were cultural.*

"A study of the facts shows that not only the point of view of these two forces has been different, but that emphasis has likewise differed. In general, the order has usually been as follows: People became more or less conscious that they had discovered a new way of controlling certain interesting or valuable situations and then they consciously sought a way of transmitting the method. But the schoolmasters accustomed to deal primarily with materials were not able to justify the method until the materials had assumed a somewhat organized form. Either of

these extremes leads to a very inadequate realization of the educational problem. One extreme tends to emphasize form without content and the other content without form.*

"Mr. Haney puts the point well when he says: 'There is in short, through all the teaching of technique, an increasing effort to make the approach simpler and more direct to convince the child that what he is doing is something which will give him an immediate power of expression.'

"It is interesting to note in conclusion that the manual arts came into the curriculum under an insistent economic pressure, one that reflected the industrial spirit of the times. They were to develop technical skills that would be useful in industry. But practice under the influence of the school teacher and teachers of art for appreciation has swayed to the opposite extreme in some quarters and these studies have become the 'expression of that idealism unacknowledged, even unsuspected by its possessors, but none the less inherent in American character.'

"This situation has been best summarized by Haney. He says: 'Elements of strength and weakness arise out of this situation; strength, in that the work is kept continually fluid and responsive to the changing conditions which affect it, weakness in that mixed motives confuse it. The pendulum now swings one way and now another. At one time the advocates of technical excellence gain through some strong plea for sound and simple drawing and well applied design. At another, those who would teach appreciation, frown down the technical practice and offer in its place schemes of *saue composition*, subtle color analysis and well tuned harmony. Even the admonition to secure personal expression is one making for weakness as well as strength, for out of the straining for individuality arise shortsighted attempts to affect the impossible, while superficial teaching and slipshod results offer 'self expression' as a first excuse.

"There is throughout the work of the schools a movement toward greater practicality. The industrial spirit is on the rise and the demand is insistent for an education not adapted, as was that of the earliest schools, to train only for leadership, but designed in more democratic fashion to train each boy that he may be fitted to produce his best. In this scheme the arts cannot but be called upon to play a most important role,— one in which 'use' will stand the constant cue. But the very democracy which pleads for the practical in education, pleads also for that element which shall contribute most surely to the pleasure of the individual and to the refinement of his nature and surroundings. Use will be demanded, but beauty will be demanded with it. The work of the schools must continue to deal with beauty and with use, or better, with 'beauty in use.'

The afternoon session was given to the discussion of the Freehand Drawing Outlines adopted last year. Interesting notes were presented by Miss Ida M. Tindall, of Pontiac, Miss Jessie Spencer, of Decatur, and Miss Luella Tupper, of Oak Park. Following are summaries of their discussions:

Miss Tindall said:

"We meet today as an organized body of workers that stand for things doing and to be done.

"If the outline course under discussion is not the best possible course let us see to it that it is made so.

"In this age of the world things simply refuse to stay put for any stated time. We are up against a modern problem and that is, how best to get this thing that we stand for over into the hearts and minds of our students and through them to the general public. It is our business as teachers to look all along the line, reporting successes and failures, gathering valuable material that may give us a new and practical standard for determining the relative value of the different phases of this subject. The work is bound to stand or fall according to its success or failure to answer its purpose and if we as searchers after the truth seem to be groping about for something tangible upon which to lay hold, it must be remembered that final and best results are not to be expected in any subject without wide and patient experimenting.

"Drawing in the high school should be, not so much of a language as a science. The work should now become relative and the principles of Art carefully studied and fixed by habit. If all teachers could see a closer relation between the process of acquiring skill in drawing and that of accomplishing the same results in other branches our problem would not be so great.

"In the grades we look for little result in the way of technique but the high school student enters with at least a small vocabulary of Art and should begin a search after technique.

"There is always a certain amount of drudgery connected with the mastery of any subject, and enough real drudgery should be put upon the first year high school work, that the student is able to get a hold of at least some of the simpler principles of drawing.

"I believe we often make the mistake of relying too much on the child, we try to draw out too much when there is nothing to draw out. The high school student needs to acquire a vocabulary of Art before he is able to create or to show any marked self-activity in the subject. Efficiency is capital; stock in trade in any line of work.

"High school students should be able to execute any of the outlined subjects with some semblance of artistic truth. The only way to bring the average student to a realizing sense of appreciation through the power of right choosing is by persistent and careful drawing. At the end of the four years' High School course we do not expect to turn out artists any more than we expect the other departments to give us wise mathematicians, learned historians, or even fair linguists; but we should see to it that they have a fair Art vocabulary.

"Aside from the outlined plan for the first year I believe copying from good copies, and memory drawing could be added with profit, and cast drawing added to the second year's work.

"Landscape in the high school seems practical only as composition. The work as outlined in Composition Design, Constructive Design, Crafts, and Art Lectures is easily followed and should be studied as a utilitarian value as well as a culture value. Time limit and equipment should control the amount.

"I believe it possible to work out the entire outlined course in the ordinary high school if the students have taken the eight years of work in the grades.

"We find a few students in the high school that have the attitude but not the aptitude but they are the exception."

Miss Spencer's views:

"The points of view in the teaching of art in universities or art schools and the teaching of art in high schools differs so much that it is not easy for the instructors in the art schools to appreciate the reasons for much work that is done in the high school drawing department.

"The art school has for its motive the result on canvas,— the public

school has for its motive the education of the pupil, the mental reaction. The business of the art school is to make artists. The business of the public school drawing is to lead the boys and girls to an appreciation of beauty through their crude efforts to express what they see and feel that their lives may be richer.

"In this new era in educational methods we have learned the value of the motive in arousing and sustaining interest. With high school pupils the motive must be an immediate one and each problem in design and, as neraly as possible, all problems should be accompanied by real motives for working them out.

"In the art school the more remote incentive of art or design as a profession sustains the interest of the student.

"Instead of giving problems in designing wall paper plates, stained glass windows, and other things, for the purpose of developing good taste and judgment, talks on good decoration with good examples to illustrate the talk will do more than the laborious working out of such designs.

"The plan of showing the classes books of samples of wall paper and talking them over, then having committees from each class get samples of suitable and comfortable figured papers for every room of the house, while other committees get samples of plain paper, mounting them, and having judges decide which sets are best is a most interesting and profitable way of developing better notions about the kind of wall paper to buy.

"High school pupils do not think easily in abstract terms. In design, it is not enough to direct a class to make borders of straight lines. A definite concrete thing to suggest a shape to work with is necessary. Charts with drawings of flowers and leaves are probably most used.

"The translation of animal and plant forms into straight lines on squared paper is an easy way to conventionalization and a good way to get effective units for straight line borders.

"The course of study seems to need more perspective, especially in the last two years, and after the first year more design would strengthen the course in my estimation."

Miss Tupper's opinions were these:

"While the subject of free-hand drawing with its allied crafts has gained materially in importance during the past ten years, the course of study which is suitable to the needs and abilities of a secondary school is still, in some degree, a matter of experiment. One phase of the subject looms large and now another. Each phase seems worth while. How to select from the richness of material the digestible and nutritive portions is our problem.

"If our effort in teaching is to train the hands and eyes of our students to intelligent use, to evolve some appreciation for what is fine in nature and in art, and to develop some degree of technical skill in expressing ideas, we must not lose sight of these ends in the immediate delight of splashing in color or pounding on brass. Each problem must be questioned as to its fitness for the end desired and must take its place as an essential factor in the whole scheme. When these essential factors have been determined, a suitable amount of time must be allowed for doing the required work. And on this rock of "time" we split.

"The committee preparing this outline of study has given us a comprehensive scheme which might easily be expanded into an Art school course. That the work indicated can be as easily compressed into the periods indicated may be questioned. Any one with experience will agree with me that one hundred twenty periods a year is inadequate for even a superficial working-out of the problems presented. To do

the work well in this same time is out of the question.

"It is owing to this general effort to accomplish a finished result during utterly inadequate periods of time that the adjective "superficial" has so often and so truly been applied to our work. It should now be our aim to bring time and effort into more adequate relations.

"If this excellent course of study is to stand as prepared by the committee, an average of 240 periods a year—3 double periods a week—should be required as a minimum of time. But if some concessions must be made I should still suggest that more time be given—at least 160 periods a year, and that the amount of work be reduced. The required work should consist of elementary problems thoroughly understood and well worked out in those mediums which demand at least technical skill.

"Using the best course of study possible, some adaptation is necessary to the conditions of each school. The following suggestions for change in the course of study are the result of my experience and are given in the hope of hearing other opinions and experiences.

FIRST YEAR—Omit study of full values except in still life. Omit use of pen and ink as a medium, and water color also except in flat washes. Work under "design" reduced by half. Include elementary instruction in working drawings.

"I should make no change in 2nd, 3rd and 4th year outlines except by urging the necessity of keeping the work elementary and thorough when time will not permit continuous practice.

"The advisability of equipping a Drawing department with metal working tools, I question. It has seemed to me to belong to the Manual Training department where the furniture is suitable for pounding and sawing and filing. We have excellent equipment for one craft—that of clay working and pottery and we believe that complete work in that line is more valuable than casual work in metal with inadequate equipment.

"It is taken for granted that the amount and quality of work demanded by the University for credit is possible to the average high school. Such a demand must then be reasonable, that the standard of work in such schools be not raised at the expense of suitability or efficiency. Let it be a standard of quality rather than of quantity."

MATHEMATICS SECTION

Section called to order by Principal Thomas J. McCormack, LaSalle, Ill. Wm. W. Denton was chosen secretary.

The report of the Conference Committee on a Syllabus for Elementary Geometry was presented by Mr. J. A. Foberg, Crane Technical High School, Chicago.

Discussion of the Committee report was led by Mr. T. W. Callihan, Galesburg, Ill.

Moved and carried that the section proceed to the discussion of the report item by item, beginning with Solid Geometry.

After further discussion and several minor amendments the report, as a whole, was adopted, and is as follows:

REVISED REPORT OF THE GEOMETRY COMMITTEE
TO THE
HIGH SCHOOL CONFERENCE, UNIVERSITY OF ILLINOIS
NOVEMBER, 1911

A. EDUCATIONAL VALUES OF ELEMENTARY GEOMETRY

The teacher of Geometry, as well as the teacher of other subjects, should have a reason for the inclusion of his subject in the course of study. Geometry, in common with other subjects, is entitled to a place in the curriculum because of

- (a) its training in logical thinking and with power to concentrate its attention,
- (b) its training in exact use of language,
- (c) its development of the "pictorial imagination", the ability to visualize objects, relations, and conditions,
- (d) its proofs of the familiar mensuration formulas used in arithmetic,
- (e) its utilitarian and practical value in the arts and sciences,
- (f) the aesthetic values which its study affords.

B. POSITION IN HIGH SCHOOL COURSE

In agreement with the Algebra Syllabus adopted by this Conference (published in the High School Manual for 1909-10) the first course in Geometry should continue through the second year, following Algebra; a second elective course of one-half year should come in the second half of the third or in the fourth year.

C. DEFINITIONS, AXIOMS, AND ASSUMPTIONS

Guiding Principles. 1. Precision in definitions should be required specially when given in student's own words. Care should be taken not to define such basal notions as, "point", "straight line", "angle", etc.

2. The first course in geometry is not a place to attempt a statement of the minimum number and of the independence of axioms. This belongs to a course in the Foundations of Geometry.

3. A free use of assumptions is recommended, yet it is essential that all propositions used explicitly in a formal demonstration be recognized either as previously proved or as belonging to the list deliberately left unproved.

4. Care should be taken that such terms as "obviously", "it is self evident", "it is easily seen, etc.", do not cover careless and inaccurate thinking.

5. Definitions and assumptions should be introduced when needed.

Fundamental Assumptions Listed. 1. Things¹ equal to the same thing are equal to each other.

2. If equals be added to or subtracted from equals, the results are equal.

3. If equals be multiplied or divided by equals, the results are equal. (Division by zero excluded.)

4. Like powers and like positive roots of equals are equal.

5. For finite magnitudes, the whole is greater than any of its parts, and is equal to the sum of all its parts.

6. If unequals are operated on in the same way by positive equals, the results are unequal in the same order.

¹Things here refers to numbers which are numerical measurements of geometric magnitudes.

7. If unequals are added to unequals in the same order, the sums are unequal in the same order; if unequals are subtracted from equals the remainders are unequal in the reverse order.

8. A number may be substituted for its equal in an equation or in an inequality.

9. If the first of three numbers is greater than the second and the second is greater than the third, then the first is greater than the third.

10. A straight line may be produced to any required length.

11. Two points determine a straight line.

12. The shortest path between two points is a straight line.

13. Any figure may be moved from one place to another without altering its size or shape.

14. Through a point one line only can be drawn parallel to a line.

15. A circle may be described with any point as a center and any line segment as a radius.

*17. All straight angles are equal.

*18. All right angles are equal.

*19. From a given point in a line only one perpendicular can be drawn to the line.

*20. Equal angles have equal complements and equal supplements.

*21. Circles with equal radii are equal.

*22. The sum of two adjacent angles whose sides lie in the same straight line equals a straight angle.

23. The length of a circle is greater than the perimeter of any inscribed polygon and less than the perimeter of any circumscribed polygon.

24. The area of a circle is greater than the area of any inscribed polygon and less than the area of any circumscribed polygon.

*25. Two lines parallel to the same line are parallel to each other.

*26. The bisectors of vertical angles lie in a straight line.

27. A diameter bisects a circle and the surface of a circle.

28. A straight line intersects a circle at most in two points.

D. INTRODUCTORY WORK

This introductory work is designed to lead the pupil gradually into demonstrative Geometry. Beginning informally, as class exercises not requiring previous outside preparation, this work should develop

(a) neatness and accuracy in drawing figures,

(b) familiarity with terms to be used in later work, as perpendicular bisector, complement, bisector, etc.

(c) a recognition of the fallibility of the pupil's judgment, and a recognition of the necessity for logical proofs.

(d) some appreciation of the usefulness of Geometry.

Only so much of this introductory work is recommended as will carry the pupil safely over into demonstrative Geometry. Care should be taken to guard against the mistake of requiring formal demonstration of theorems which seem obvious to the pupils without proof. Introductory work may be selected from such work as the following:—

1. Problems on complementary and supplementary angles.

2. Constructing triangles when given three sides, two sides and included angle, two angles and included side.

3. Comparison of two triangles constructed with same given parts, using tracing paper or cloth, leading to the three cases of congruent triangles. Simple inaccessible distance problems.

4. Construction of perpendicular bisector of a line.

*The starred assumptions may be taken as theorems for informal proof or as statements of facts in the contest without special emphasis, if preferred.

5. Drawing of perpendicular bisectors of sides of triangle, medians, and bisectors of angles.
6. Drawing of circum- and in-circle of a given triangle.
7. Drawing of a triangle, square, hexagon inscribed in a given circle.
8. Sufficient use of geometrical optical illusions.
9. Graphic proof of the Pythagorean Theorem with problems depending on it.
10. "Views" of prism, cylinder. Simple mechanical drawings.
11. Sum of angles of triangle by cutting out angles and juxtaposing; algebraic problems concerning angles of polygons, isosceles triangle, and exterior angles.
12. Angles related to parallels cut by a transversal; algebraic problems.
13. Construction of paths of points moving according to simple conditions.

It is desirable that each pupil be provided with simple and inexpensive compass, ruler in inches and centimeters, and a protractor.

E. EXERCISES AND PROBLEMS

1. Guiding Principles. (a) The purpose of problems is to emphasize principles and theorems, and problem work is in general a means rather than an end.

(b) There should be numerous simple problems and exercises rather than a few difficult ones; there should be some oral exercises.

(c) Some exercises should come immediately after the theorems which they apply and there should be a good list at the end of chapters.

(d) Geometry should be given a concrete setting by the use of some problems from real life for the sake of clearness and interest. It is valuable to ask the students to find illustrations of abstract theorems from their own experience.

The following illustrate the meaning of concrete problems:—

(a) How high will a 40-foot ladder reach on a house if its foot is placed 5 feet from the side of the house?

(b) How could a carpenter's square be used to test whether or not a notch in the edge of a board is a true semi-circle?

(c) With only a mirror and a yard stick, how could one measure the height of a pole?

(d) Why is a step ladder made three-sided rather than four-sided?

Lists of concrete problems are available in some of the later texts and in "School Science and Mathematics" (Oct. 1911, page 662 and others). Care should be taken to select problems which are real applications of geometry and which involve only terms familiar to the student.

2. Algebraic Methods. The use of algebra in geometry (a) correlates Algebra and Geometry, (b) gives practice in translating symbols into English, (c) leads to simpler notation, and (d) leads to the notion of functionality.

Illustrations of the algebraic method:—(a) Given in the right triangle ABC, c the hypotenuse, a and b the two legs; x projection of b on c , y the projection of a on c ; to prove $c = a + b$. (Wentworth 371, p. 162)

(b) Given a the hypotenuse and b the sum of the two legs; to construct the right triangle.

Solution: $x + y = b$, $x^2 + y^2 = a^2$. Solving $x = \frac{1}{2}(b + \sqrt{2a^2 - b^2})$, $y = \frac{1}{2}(b - \sqrt{2a^2 - b^2})$, which values may be constructed with ruler and compass (Sauders p. 211)

(c) Given line $AB = 4r$ and C its middle point; on AB , AC , and CB

semi-circles are constructed. To draw a circle touching the three circles.

Solution: Let x =radius of required circle; then $x+r^2=r^2+2r-x)^2$, and solving, $x=\frac{2}{3}r$. (Young p. 179)

3. Locus problems. Locus problems deserve a place in Geometry because

(a) they introduce motion into our geometric notions, which would otherwise be entirely static,

(b) they are necessary in the solution of many construction problems,

(c) they develop the important notion of functionality.

In all locus proofs the two defining properties of a locus of a point should be emphasized, namely, (1) all points lying on the locus must satisfy the given conditions, and (2) all points which satisfy the given conditions must lie on the locus.

Illustrations of locus problems:—(a) Find the locus of all points at a constant distance from a fixed line.

(b) Find the locus of a point equidistant from two fixed points.

(c) What is the locus of the centers of circles tangent to a line at a given point?

In the study of loci advantage should be taken of the opportunities to introduce space notions. Thus, the locus of a point always a fixed distance from a fixed point in space is a sphere; of a point a fixed distance from a fixed line, is a cylindrical surface; etc. In general it is desirable throughout the course in Plane Geometry to call attention to the corresponding space forms of Solid Geometry.

F. LIMITS AND INCOMMENSURABLES

The limit notion is needed to define such things as "length of a circle" (the limit of the perimeter of an inscribed, or circumscribed, polygon as the number of sides become infinite), "area of a circle", "surface of a sphere", etc., and therefore should be included in Elementary Geometry. A correct, though not most precise definition of a limit should be given and great care should be taken to avoid the commonly used but incorrect words "never reach." The following definition is recommended: "The limit of a variable is a constant such that as the variable approaches this constant their numerical difference becomes and remains less than any previously assigned positive number, however small."

The "Fundamental Theorem of Limits" as ordinarily stated, should be omitted as trivial. The following theorem should be introduced and used to show the existence of limits met in Elementary Geometry: "If a variable always increases (decreases) and is always less than (greater than) some finite constant then it has a limit." Make this theorem seem true by illustrations, attempt no proof for it. Proofs of incommensurable cases should be omitted or postponed but some notion of the meaning of "incommensurable" should be developed.

G. OMISSIONS

List of omissions recommended: 1. Square of side of triangle opposite acute angle, etc.

2. Square of side of triangle opposite obtuse angle, etc.

3. Division into mean and extreme ratio.

4. Inscribed decagon.

5. Calculation of π by perimeter of inscribed and circumscribed n -gon. Verify the value of π by some simpler method.

6. Proofs of theorems on limits.
7. Proofs of incommensurable cases, but not the incommensurable idea.
8. Maxima and minima.
9. Sum of two sides equal to twice the square of half the third increased, etc.
10. Difference of squares of two sides, etc.
11. Square of bisector of angle equal to product of two sides, etc.
12. In any triangle the product of two sides equal to diameter of circumscribed circle multiplied, etc.

H. EMPHASIS

The following topics should receive special emphasis:—

1. Congruence of triangles.
2. Similar triangles.
3. Pythagorean theorem.
4. Properties of circles.
5. Mensuration theorems.

I. OUTLINE FOR PLANE GEOMETRY

In the following outline certain important theorems (those starred) have been taken as nuclei about which are grouped related theorems. In this way important theorems are singled out for special emphasis and the content of the course is suggested.

I. Congruent Triangles. *1. Triangles are equal if two sides and included angle, two angles and included side, or three sides, in one have equals in the other.

2. Propositions on right triangles.
3. Propositions on isosceles triangles.
4. Circum- and in-circle of triangle.

II. Parallels and Parallelograms. *1. If two parallels are crossed by a third line the alternate interior, the alternate exterior, and the exterior interior angles are equal.

2. Angles having parallel sides are equal or supplementary.
3. Lines perpendicular to the same line are parallel.
4. Propositions on parallelograms.
5. If parallels intercept equals on one transversal they intercept equals on every transversal.
6. Sum of angles of a triangle.
7. Sum of interior angles of a polygon.

III. Circles. *1. In the same circle or equal circles, equal chords are equidistant from the center, and converse.

- *2. Central angle is equal to its intercepted arc.
- *3. Equal chords subtend equal arcs, and converse.
4. Measurement of angle when the vertex is
 - at the center of circle,
 - between the center and the circle,
 - on the circle,
 - outside the circle,
5. Tangents from the same point are equal.
6. If two circles intersect, the line of centers is perpendicular bisector of common chord.

IV. Similar Triangles. 1. If a line is parallel to one side of a triangle, it divides the other two sides proportionally, and converse.

- *2. Triangles are similar when

they are equiangular,
two sides are proportional and included angles are equal,
three sides are proportional.

3. Product formulas.
4. Similar right triangles.
5. Pythagorean theorem.
6. Trigonometric ratios.
7. Similar polygons may be divided into corresponding pairs of similar triangles, and converse.
8. Perimeters of similar polygons are proportional.

V Regular Polygons. *1. Regular polygons of the same number of sides are similar.

2. Lengths of circles are proportional to their radii.

$$C = \pi r$$

Some simple method of verifying value of π

3. Circles may be circumscribed about or inscribed in any regular polygon.

4. Side of hexagon is radius of circumscribed circle.
5. Inscribed equilateral polygon is regular.

VI Areas. *1. Area of rectangle is product of base by altitude.

2. Of parallelogram.
3. Of triangle.
4. Of trapezoid.
5. Of similar triangles.
6. Of similar polygons.
7. Of regular polygon is $\frac{1}{2}$ perimeter by apothem.
8. Of circle.

OUTLINE FOR SOLID GEOMETRY

Throughout the course in Solid Geometry efforts should be made to relate the work to Plane Geometry wherever possible. Special emphasis should be placed upon the real grasp of space notions and theorems; pictures, stereoscopic views, and models may be used to assist in grasping space relations but too great a use of such aids may work against the visualizing habit which is one of the chief values of Solid Geometry. Solid Geometry offers excellent opportunities for algebraic symbols and methods; it is recommended that mensuration rules be written in algebraic form but read in the translated English form. Logarithms may be used in computation problems if the second course in Algebra precedes Solid Geometry.

Additional Assumptions: 1. Two intersecting lines, two parallel lines, a straight line and a point outside that line, or three points not in a straight line, determine a plane.

- *2. The intersection of two planes is a straight line.
- *3. The projection of an oblique line on a plane is a straight line.
- *4. Every plane section of a cone through its vertex is a triangle.
- *5. Every plane section of a cylinder throughout an element is a parallelogram.
6. The shortest distance on a sphere between two points is the minor arc of the great circle joining them.

I Theorems closely related to Plane Geometry.

1. If two parallel planes are cut by a third plane the intersections are parallel.
2. If a line is parallel to a plane, then the intersection of that plane

with any plane through the line is parallel to the line.

3. Equal oblique lines from a point in a perpendicular to a plane cut off equal distances, and converse.

4. Angles having sides parallel in same order are equal.

5. The plane bisecting a line at right angles is the locus of points equidistant from the ends of the line.

6. If two lines are cut by three parallel planes corresponding segments are proportional.

7. The angle a line makes with its projection on a plane is the least angle it makes with any line in the plane.

8. Two planes perpendicular to the same plane are parallel.

II Lines and Planes.

*1. A line perpendicular to two lines at their intersection is perpendicular to their plane.

2. Every line perpendicular to a line at a point lies in a plane perpendicular to the line at that point.

3. Through a point only one plane can be drawn perpendicular to a line.

4. If a line is perpendicular to a plane every plane through the line is perpendicular to the first plane.

5. If two planes are perpendicular, any line in one, perpendicular to their intersection, is perpendicular to the other plane.

6. If two intersecting planes are each perpendicular to a third their intersection is perpendicular to that third plane.

7. The locus of a point equidistant from sides of a dihedral is the bisecting plane of the dihedral.

III Spheres.

1. Every plane section of a sphere is a circle.

2. A plane tangent to a sphere is perpendicular to the radius at point of tangency.

3. The distances of a circle on a sphere from its poles are equal.

4. If a point on a sphere is at a quadrant's distance from the other points not at the extremities of a diameter, then it is the pole of the great circle through the two points.

5. A spherical angle is measured by the arc it intercepts on a great circle having its pole at the vertex of the angle.

IV Polyhedral angles and spherical triangles.

1. The sum of two face-angles of a trihedral is greater than the third.

2. The sum of the face-angles of a polyhedral is less than 4 right angles.

3. Two trihedral angles are equal or symmetric when two dihedrals and included face-angles, two face-angles and included dihedral, or three face-angles, in one have equals in the other.

4. The sum of two sides of a spherical triangle is greater than the third.

5. The perimeter of any polygon is less than 360° .

*6. Two spherical triangles are equal or symmetric when they have

$$\begin{array}{lll} A=A' & B=B' & c=c' \\ a=a' & b=b' & C=C' \\ a=a' & b=b' & c=c' \\ A=A' & B=B' & c=c' \end{array}$$

7. If one spherical triangle is the polar of a second, then the second is also the polar of the first.

*8. In two polar triangles any side of one is the supplement of the

opposite side of the other.

9. The sum of the angles of a spherical triangle is more than two and less than six right angles.¹

V Mensuration.

1. Lateral areas of prism, cylinder, regular pyramid, cone, and frustum.

2. Area traced by line revolving about an axis in its plane.

3. Spherical areas; zone, sphere, lune, and spherical triangle.

4. Volumes

(a) Rectangular parallelopiped; by counting cubes formed by passing planes.

(b) Right prism, and cylinder as limit of inscribed prism as number of sides of base become infinite.

(c) Cavalieri's Theorem: "Two solids having bases equal in area and equal altitudes are equal in volume if every two plane sections at same distance from base are equal in area." (Beman and Smith Geometry, p. 298) Illustrate without proof.

(d) Oblique prism and cylinder, by proving equal in volume to right prism and cylinder using (c).

(e) Pyramids and cones having same altitudes and bases equal in area are equal in volume; use (c).

(f) Volume of triangular pyramid.

(g) Any pyramid or cone, as sum, or limit of sum, of triangular pyramids.

(h) Frustum as difference in volumes of two pyramids or cones.

(i) Sphere as equal in volume to certain cylinder having two cones removed from its volume, using (c).

(j) Spherical segments using (c).

5. Sensible use of approximations in measurements and computations.

At the afternoon session the discussion of the question "How can future meetings of this section be made most helpful to the high school teachers of Mathematics?" was led by Dr. E. H. Taylor, Charleston Normal School. He spoke as follows:

Eastern Illinois State Normal School Associations of teachers of mathematics have given much attention during the last few years to the preparation of syllabi for elementary algebra and geometry. Some of the ways in which this work has been of benefit to the teaching of mathematics in the secondary schools are these:

(1) These syllabi have set forth with some detail definite outlines of the work to be done by the secondary schools; outlines, furthermore, which some at least of the teachers in both the colleges and secondary schools have agreed upon.

(2) From the discussions of these syllabi there has come fairly general agreement that certain parts of the traditional subject matter should be omitted; witness the list of theorems in the report discussed today; and that there should be more applications to problems involving data taken from the actual experience of the pupils.

(3) Much prominence has been given to methods of presentation. As an illustration recall the report submitted today. Section B states the time and place that geometry should occupy in the high school course. Section C first gives some "Guiding Principles" which are suggestions as to teaching, and following these is a list of fundamental as-

¹Emphasis should be laid upon the duality existing between spherical and plane geometry.

sumptions. The material in this list is traditional. What is new is the recommendation that many theorems of which formula proofs have heretofore been given be now assumed without proof. The first sixteen lines in Section D are instructions for the presentation of the introductory work. The first nine lines of Section E discuss the teaching of exercises and problems, and the last seventeen lines, the treatment of logic. Section F is mainly a discussion of the method of treatment of incommensurables.

The subject matter of geometry presented in this report is very much the same that most of us were brought up on. We have eliminated some of the more difficult theorems and have added more exercises in construction, applied problems, and problems requiring algebraic solution. The progress that we have made, then, in the adoption of this syllabus, does not consist alone in the definition of the subject matter for geometry but also in the recommendations as to order and method of presentation.

When the syllabi for algebra and geometry that have recently appeared are compared among themselves and with the older courses in algebra and geometry, it is at once evident that there is a certain amount of subject matter in both subjects that all of us think should be there. Any one, I suppose, who would venture an opinion would say that in the high school courses in mathematics a boy should be taught the Pythagorean theorem and how to solve a quadratic equation. But there is not general agreement as to the best methods of teaching even such topics as these. When shall we begin the study of algebra and geometry? What is the best way to complete the square in a quadratic equation? What kind of text in geometry is best suited for high school work? These are some examples of some "real problems" in the teaching of topics that all of us agree should be taught. On the other hand, we hear many conflicting assertions with regard to the value and amount of certain kinds of subject matter. How much and what kind of constructive geometry shall be taught? What is the place of the applied problem? We have had much discussion recently upon such questions as these.

There are then two classes of questions that are of immediate and practical importance, one concerning the kind of subject matter and the other concerning methods of teaching certain definite topics that all of us agree should be taught. It seems to me that this section can be of great service to the high school teachers of mathematics by attempting a scientific study of some of these questions.

If there comes to be a science of education, its truths and principles must be secured by experiment, observation, and the careful collection of data from which hypothesis are drawn which are to be tested and corrected by further experiment, observation and comparison. One of the most helpful signs in education today is the growing tendency to discount educational doctrine based upon apriori judgments or the unverified summations of scattered, unrecorded experience, and the increased insistence that theories of education shall be based upon facts collected, examined and tested by trained minds.

Much of the agreement on questions of teaching that we hear in a mathematics section, or in any other section so far as my experience goes, has no safe basis in known facts. It seems to me that it is possible for us to place some of our notions upon a safer foundation. That, I take it, is what is recommended in this sentence in the announcement of this conference: "It is also hoped that the different sections may take up some continuous study of a scientific nature, of the educational problems presented by the various departments of high school teaching and organization." So far as I am concerned as a teacher of algebra and geometry, the most interesting thing that this section could do is to take

up a careful study of some questions concerning the subject matter and methods of teaching of elementary algebra and geometry. What I have in mind is illustrated in an article* by Mr. Fiske Allen in the current number of the *Mathematics Teacher*. It seems to me that it would be worth while for the members of this section to undertake in some such way as the one used in this experiment to find out some things about the teaching of high school mathematics. If enough of us are willing to record our methods of work and our results and to report them either to the section directly or to a committee appointed by the section, we might accumulate for our consideration next year a body of facts that would point to some way of attacking some real concrete problems of teaching. This is a field to which all of us contribute something, and the records of our actual classroom experiences and results will form an excellent basis for our discussions.

The following are suggested for your consideration as possible topics for experiment.

Algebra.

1. What is the best method of factoring the form $ax^2 + bx + c$?
2. In simplifying expressions like $3a - b + 3c - (2a + 3b - 4c)$, shall we change signs and add, or apply the definition of subtraction directly?
3. Are there any devices that are especially useful in eliminating errors like $\frac{ax + b}{a} = \times + b$; $\sqrt{a^2 + b^2} = a + b$; $4abc + c - c = 4abc$?
4. How shall the subject of algebra be introduced?

Geometry.

1. How much and what kind of construction work should be done?
2. How much time should be given to the discussion of theorems and how much to exercises? Can we arrive at any conclusions on this question for students of a given grade of ability?
3. What is the best kind of text for high school work, one with all the proofs in full, outlines of proofs, or a syllabus?
4. Can we measure the effect of constructive geometry in the grades upon the work in demonstrational geometry?
5. What kind of geometry is the best for the study of physics?

MODERN LANGUAGE SECTION

This section had a very interesting session. The leading address was by Professor Ernst Voss of the University of Wisconsin on "Personality and Enthusiasm vs. Method." We summarize this as follows: The speaker began by criticising the attitude of certain professors of pedagogy with regard to modern language teaching. He expressed the belief that the criticisms offered were due to poor results in teaching which again were the result of poor preparation for the work of teaching these languages. He spoke of the reform begun in the teaching of language by

*Some Experiments Testing Methods of Factoring the Type $ax^2 + bx + c$. *The Mathematics Teacher*, Sept. 1911.

Wilhelm Viëtor of Prussia, and referred feelingly to the work of Director Walther of the model school in Frankfort-on-the-Main as one of the great exemplars of this reform. He attributed the great success of Walther as a teacher not to any new method but to his personality and enthusiasm. "Method," he said, "is the dead form; it is personality that gives life and significance." Then he appeals to the experience of his hearers for verification. Continuing, he said further:

"And here I make the sweeping statement that only in exceptional cases the teachers of French or German in our American high schools and colleges are ready and prepared in their subjects as they should be if they wish to inspire, if they wish to make a lasting impression upon their pupils. Our teachers are badly prepared for their tasks and the demands upon our pupils are too much in far too short a time. The worst of it is, we continually deceive ourselves about what we think we are accomplishing. We cannot speak the language that we pretend to teach, we cannot read it intelligently in many cases, we know too little about the country in which the language is spoken, neither about its history, its geography, nor about the customs and manners of its people. We are not in sympathy with the people who live in that country. But we teach French or we teach German, and of course we cannot enjoy our subject, because we do not master it, because it *does not master us and inspire us*.

"Let us at last be outspoken and honest on this matter. I have hoped for years that the remedy for all this sham, this slipshod preparation for the profession might be *discovered* and loudly *demand*ed from the ranks of the teachers themselves, of whom we university professors ask and demand very often the impossible. It is from within that we must hope to find our remedy. Outside obstructions will disappear of themselves.

"Our teachers of German and French begin their preparation for their work as a rule in the High School where they are supposed to lay the foundation for the modern languages in a *two years' course*. What a farce! One year of grammar and another year of reading, the amount of which is recommended and prescribed by the infallible committee of twelve. They must have been thinking of Gods and not of Mortals when they made out that list.

* * * * *

"Every modern language teacher knows that the amount of reading demanded or suggested in the elementary courses in French or German is nonsensical, a lie in itself, just the thing needed to make slipshod work the rule. But in this well organized, subservient democracy of ours, nobody dares to *speak*, nobody dares to register the *kick*, dares to defy these unreasonable, unpedagogical demands.

* * * * *

"The remedy can only lie in finding a way to do *well* what has been begun so *late* and continued so *hastily* and *irrationally*.

"The languages must be taught for commercial as well as pedagogical and scientific reasons. The time has come when this country can no longer disregard the necessity of a thorough knowledge of Spanish, French and German for commercial reasons *alone*, if not in order to introduce the American boy and girl to the treasures of the literatures of the people. For that reason it is absolutely necessary not only to lengthen the course for modern language instruction in the high schools,

but to begin the study of Spanish, French or German in the *grades, where they belong*, since those are the years of the child's life when language is the thing he can most easily learn."

He spoke of the courses of study in the Canton Geneva, in Switzerland, as models of preparation. The study of language begins in the fourth year of the elementary grades and continues on up through the Gymnasium. This constitutes their preparation for the University. Again we quote the speaker:

"Imagine what a difference it would make to you, if you could receive in the American high school boys and girls so trained in the grades for linguistic work.

"In the upper gymnasium, the high school proper, the work of the lower gymnasium is continued for four more years and the pupil may enter either the *pedagogical* course which prepares him for the Normal School, the *technical* course which fits him best for the engineering courses in the polytechnical schools, or he elects the *ancient* or the *modern* classical course (in which we as teachers of languages are naturally more interested.)

"As a preparation for the study of the modern classics he begins here the study of *English* as a *third* foreign, language, continuing the study of Latin and German for four more years. At the end of his studies in the gymnasium he has had nine years of German, seven years of Latin, four years of English. With such preparation he enters the *university* devoting all his time now to those subjects in which he is especially interested.

* * * * *

"Here is remedy number two,—*First better prepared teachers, second real professionals, not amateurs, not time servers, not transients, but men with a life mission.*

* * * * *

"All along the line from the kindergarten teachers to the university presidents we must learn to make the greater demand for men of a strong *personality* as against the man whose devotion to *method* blinds him to the business of *educating*. And this choice of the born teacher, the *gottbegnadeten schulmeister* like President Bascom and Rudolph Hildebrand, is the rock upon which we *build* or the one upon which we *wreck* our school system.

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"We must educate the *public at large* in these things. We must labor as a *body* and as *individuals* to divorce our schools from all political connection. We must arouse a sentiment in the smaller towns and villages as well as in the cities that will demand *expert service* from a *highly paid* and still more *highly trained* superintendent or better still from a *commission* solely responsible for the selection of teachers on these *fundamental* questions of *personality* and *scholarship*. Let those entrusted with such far reaching vital decisions as these come to their task with full sense of their responsibility to the community, for in no other place can the false servant do us such irreparable harm.

"The fate of educational reform, language teaching included, rests entirely in your hands and will be decided by what is done through your efforts."

"The Place of Modern Language in the High School Curriculum" was the next topic discussed. In this discussion

Superintendent Earnest, of Champaign, led.

He argued that

"no branch is entitled to a place [in the curriculum] unless its study does one of two things for the pupil,—either helps him to live or to make a living." Developing this point he inclined to the opinion that only those who show some natural ability for language should study foreign language in the high school.

"The reaction of modern language on moral soundness," he said, "is not marked." On the economic value of the subject he spoke as follows:

"The value of modern language study as vocational training, as an aid to the pupil in the process of making a living, earning money, securing influence and position is a real one but not of considerable value only in a comparatively few exceptional cases. It is often alleged as a chief reason for this study and probably has much influence in causing young people to choose it; but I believe it has been over-emphasized. It is sometimes of commercial value to be able to speak in their native language with customers in localities in which many immigrants dwell; but the simple trading dialect could be learned in a shorter time by practical association than in school; very few of a high school class will ever need it, and the school course does not give it anyhow. Again there are golden opportunities for commercial travelers in foreign lands, for consular agents, diplomats and professional travelers or special workers of various kinds who have mastered the languages of the countries to which they are assigned or called. But this again is the work of but one in a hundred; is special training outside of the scope of high school work, and requires a higher degree of mastery than the high school student usually attains.

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"One other practical value should not be omitted,—that of enabling the students of various practical sciences to read works not yet published in English translations. This value seems to be highly regarded in colleges and professional schools but is once more a benefit to but a small percentage of our high school pupils.

"The only element of social efficiency not yet discussed in relation to our topic is that of personal charm, attractiveness or influence, which is something not economic and yet often closely allied with the economic and resulting in economic success. But it also, has other results, such as making the person useful as a dispenser of happiness and fine spiritual influence in the various relations of neighbor, friend, parent or other relative. Now it is in developing this important side of the personality that it seems to me the use of really successful modern language study is greatest. Very little evidence of this need be adduced. The great means by which it broadens sympathies and ornaments the personality is the literature that it opens up to the student.

* * * * *

"The ancient language is the source of much of the grafted elements of English; while the German and the English are branches on the same native stock. Each one sheds some light on the exact meaning of English words; but neither can give us much more of this through its study as a language than could be derived from a little elementary study of etymology and diligent use of the English dictionary.

"One distinct disadvantage that Latin suffers is that its literature has been so long before the world that its translations approach perfection and there is therefore less need of the original form of the literature. Again, it is so unlike our own language as to require years more of labor to secure satisfactory results than in the case of modern languages

and the disposition is growing fast to question whether the reward is worth the labor. Those who love Latin assure you that it is.

"On the whole, it seems that Latin is holding its place largely through traditional belief in its cultural value and is likely to be displaced more and more by modern tongues. I think the high schools are not called on either to defend it or to push it down. I should recommend it for some but modern language for the majority who should study foreign language at all.

"If able to maintain but one foreign language, I should choose the German, but whenever possible would offer a four year course in both Latin and German, thus giving the two places of equal dignity, and would advise that no student taking either should drop it until two years of work had been satisfactorily accomplished. Then the pupil should be able to decide whether his taste, ability and needs make it advisable for him to carry the study further."

At the close of this discussion a vote was taken on the question "Does this section approve of the accrediting by the University of less than two years of consecutive high school work in any one language?" was carried unanimously in the negative.

The following standing committee was appointed: O. P. Klopsch, Peoria, Professor Carnahan, of the University, and Superintendent W. W. Earnest, of Champaign.

The afternoon was given to separate groupings of the section for the discussion of work by the teachers of French and German respectively. In the German group, Dr. Bloomfield, of the University, discussed "The Direct Method of Teaching German." He spoke, in brief, as follows:

"The message which linguistics,—the study of human languages, its history and laws,—bears to the teacher of languages favors the plan of procedure known as "The Direct Method."

"The definition of this method must be mainly negative, for the "direct method" is uniform only in abandoning the old system of theoretical grammar plus translation. It varies with the requirements of the students and the personality of the teacher.

"The first matter to be taken up in the study of a language is pronunciation. Linguistic science has ascertained that the pronunciation of a foreign language cannot be acquired by a process of mere imitation. The teacher must take up the foreign sounds, one by one and in groups, before texts in the traditional orthography are put before the student: as an instance the German *z*-sound may be cited, where the written form misleads many a student until the habit of mispronunciation becomes ingrained. The pronunciation of each sound must be described, practiced, and learned before the spelling is presented. In the case of entirely strange sounds, such as the German *ch*-sounds, the teacher must tell the student exactly what to do with his organs of speech, and extended practice must be given. The student must be familiar with a considerable amount of German before he is given a text in its orthographic form; in the interim a transcription in a phonetic alphabet can conveniently be used: both theoretic considerations and experience show this to have no evil effect on the student's later acquisition of spelling. In the worst case, faults of spelling are more easily corrected than an ingrained bad pronunciation.

"The texts must be studied in the foreign language. Translation leads the student to regard the foreign text as a mere symbol, a kind of cipher-code, for arriving at an English statement: the more casual the attention which he can give to the foreign words, the more rapid and idiomatic will be his translation. The constant introduction of English is certain to shunt the student's mind over to the English track,—an easy downhill shunt, of course. In the beginning texts must be used which can be explained by reference to objects and actions within the classroom, so that English need not be used. Question-and-answer exercises serve as drill, e. g.: *Wohin lege ich das Buch?..Sie legen das Buch auf den Tisch...Wo liegt es nun?..Es liegt auf dem Tisch...* Even when narrative texts are taken up, a little later, as much explanation as possible and all the drill must be in German.

"The purpose of this is not to teach primarily speaking. Our conditions do not warrant our trying this. But it is linguistically impossible to get a reading knowledge of a language,—that is, to understand its construction and inflection and to increase one's vocabulary so as to dispense with constant use of the dictionary,—unless one has a nucleus, of words and expressions that are absolutely one's own, to the point of perfect understanding and mastery, extending, of course, to a producing knowledge. With such a framework,—and not without it,—new words and constructions, new German material, can be assimilated. The foreign constructions, new German material, can be assimilated. The foreign language must be to the student a *language*, like English, not a *com-* moreover, to have our students understand the foreign language when it is spoken, and, should occasion arise, to be in position to develop the ability to speak. The fact that the exact amount of text covered in class is perhaps less than by the old translation method, is of no importance if we enable the student to read. We are too familiar with learners who have translated hundreds of pages of German prose, not to speak of "Wilhelm Tell", and are yet incapable of reading for pleasure the simplest German story.

"Scientific students of language, who perhaps study grammar more than any other class of people, are unanimous in the conviction that theoretical grammar is not a means of learning a language. A grammatical fact of a foreign language cannot be appreciated until the learner has himself seen it and assimilated the phrases and sentences in which it is involved. If we wish to teach our students a new fact of grammar we must first present a text in which it occurs, bring the student, by explanation, preferably in German, to understand this text and to form German statements or answer German questions involving the new principle, and then let him collect the cases in which the new principle occurs. To an English-speaking person, for instance, the statement that "the direct object stands in the dative" is meaningless; but if, knowing the German dative forms (say, from their use with prepositions), he hears repeatedly and reads a story containing several datives of indirect object, he will soon appreciate the peculiar flavor of this construction.

"Composition, as taught by the old method, is a form of theoretical grammar, and a very unlinguistic one. The English sentences presented constantly mislead the student and weaken his budding sense of what is German. His mistakes become ingrained as he writes them down only long after their German equivalent has been thoroughly mastered, and even then they may hurt the weakest students. The great bulk of composition work must take the form of direct expression in German: answers to questions based at first immediately, then less closely on the text, statements of facts or happenings actually in the class-room (or presented in a picture), and retelling of stories and descriptions already studied. Students may also be set at simple dialogues.

"From among the many books on modern methods of teaching languages I shall name only one because it is written by a linguist from the linguistic point of view: Otto Jespersen's *How to Teach a Foreign Language*, Macmillan, 1904 and 1908."

A committee then read a report on the standardization of the Teaching of German in the High Schools of Illinois. This report was as follows:

I. Beginners' Books (Grammars) and Composition Books. Reported by Professor N. C. Brooks, University)

1. Composition Books.

An investigation as to usage in the state reveals the following facts. Only two regular composition books are used at all largely in the state. These are Bernhardt, used in the second year, and not found satisfactory as a rule; and Pope, used generally in the third year to which it is best adapted, and where it is found generally satisfactory.

While many teachers base the composition work upon reading texts, yet it is generally conceded that a regular composition text is better.

2. German Beginners' Books. (Reported by Miss Esther Massey.)

Statistics submitted showed a wide range of preferences in texts. Among those leading are: Bacon's German Grammar, Spanhoofd's Lehrbuch der Deutschen Sprache, Vos' Essentials of German, Collar's First German Book, Becker-Rhoades' Elements of German and Joynes-Meissner (for beginners).

The expressed opinion of teachers reveal that the first three are most favorably received, and in the order named.

The general lack of unanimity makes standardization difficult. The committee expresses a hope that the German teachers of the state may ultimately agree upon certain general principles about aims and methods that will lead to a reasonable degree of uniformity in all matters essential, and thus permit of some standardization of the work in beginning German and in Composition.

The direct method of presentation was strongly recommended.

II. German Readers.

Statistics show a large use of the reader in the first year and in the first part of the second. Statistics show Bacon's *Im Vaterland* to be most in favor. Other books used are Glueck Auf, Maerchen und Erzählungen, Herein, Daheim, Altes und neues, Bilderbuch ohne Bilder, Traummereien, Willkommen in Deutschland, Volkmann's Kleine Geschichten, Caruth's German Reader, Muller's Neue Maedchen.

Not too much haste in introducing the reader is the advice of the committee.

III. The Texts Read, (Reported by O. P. Klopsch).

(1) To a careful student of the statistics sent to this committee during the past two years by the teachers of German in the high schools of Illinois, it is very evident that there is a strong tendency towards a considerable diminution of the kind of reading mostly in use in the high schools of our state in former years. This reading is rapidly being displaced by a comparatively new kind of material, and of this latter a much greater quantity is required to be mastered than the quantity of the displaced old material. Notwithstanding the fact that the courses were formerly shorter and the total amount of reading less, the number of great classics read was larger than nowadays and the critical study of them much more minute.

"But evolution took place. On the one hand the student was better prepared for the reading of the classics by giving him a larger vocabulary and a better acquaintance with the German language and thought

through the reading of an increasingly large number of the shorter and easier novels and Novellen of the more modern authors; while on the other hand the number of classics was reduced and only the easier and to the pupil more interesting ones were selected.*

(2) If we turn to our statistics for the past two years and see what the most common courses of reading actually are—not what the teachers desire them to be—we find that, during the first year of the course, but a comparatively small number of schools read anything but the readers, excepting, of course, the reading selections found in the grammars.

"During the second year some continue these readers the first semester, but most schools begin the second year with some easy Novelle. The text most generally used is "Immensee," two-fifths of all the schools reporting two years ago used it the second year, and this year's reports show "Immensee" in three-fifths of the schools during the second year. In two year courses "Tell" is almost as much used, because many teachers feel that pupils should not leave school without at least a glimpse of one of the great classics. Next in popularity is "Hoehrer als die Kirche." It is read in about one-half as many schools as "Immensee" is. A rather close race for third place is run by "Germelshausen," "L'Arrabbiata" and "Der Schwiegersohn." Most commonly three texts like those mentioned in this paragraph are read during the second year, in addition to the grammar work, the composition exercises and the drill in conversation. "Immensee" or "Germelshausen" are generally read during the first quarter, "Hoehrer als die Kirche" or "L'Arrabbiata" during the second, and "Der Schwiegersohn" or "Tell" during the third.

"In the third year "Tell" is unquestionably the favorite. It is usually read the first quarter. Some schools read "Minna von Barnhelm" instead. The friends of "Tell" for third year reading outnumber those of any other classic three to one. Next in popularity is "Hermann und Dorothea," generally found in the last quarter. And some Novelle or some novel is studied during the second quarter. There is not enough unanimity among teachers with regard to this for us to mention any one text as being practically prominent. Some schools read a third classic like "Die Jungfrau von Orleans" or possibly "Marie Stuart" instead of the novel or Novelle. For this third year of the course, as for the second, it is considered sufficient to read three texts during the year, if prose composition and German conversation are to be emphasized, as is mostly done.

"Our statistics include comparatively few schools with four-year courses, so no attempt will be made to report on them.

"(3) The present-day general tendencies, if not carried to extremes, should be productive of good results. The readers with the "Realien" do furnish a good basis from which to proceed to a study of the literary master-pieces. Some of the available readers are, however, too difficult for first year work. The mistake is commonly made of trying to accomplish too much in too short a time. We advance too rapidly in degree of difficulty in our readers and in our other texts. However desirable it may seem that pupils read some good easy Novelle at the end of the first year, it will be found practicable only under exceptionally favorable conditions. This is likewise true of the reading of a great classic, like "Wilhelm Tell", during the second year. What a fine thing it would be, if pupils in two-year courses could come under the influence of "Tell!" But the majority of the teachers reporting, as well as the committee, feel that only in very exceptional cases are classes ready to take up "Tell" the second year.

"The gap between "Immensee" and "Tell" is generally conceded to be a great one and there is some trouble in bridging it over. The objection to a use of "L'Arrabbiata" and "Der Neffe als Onkel" for this purpose, made by a constantly growing number of teachers, because of the

foreign setting of these works, seems to be well made. This leaves "Hoeher als die Kirche" and "Der Schwiegersohn" as the favorites for the intermediate step. Both of these are fairly good, although "Hoeher als die Kirche" has a somewhat remote historical background for beginners, and a somewhat sickly sentimentality, and "Der Schwiegersohn" is too difficult for the first part of the second year, where it is put, if "Tell" is read in a two-year course.

"In a three-year course matters are somewhat improved by reading "Tell" or "Minna von Barnhelm" during the first quarter of the third year. This enables the teacher to put "Der Schwiegersohn" at the end of the second year, and leaves two quarters, one for "Immensee" or for "Hoeher als die Kirche"—if it must be read—and the other for a continuation of the study of some book devoted especially to the "Realien."

"Still better is the postponement of "Tell" to the second quarter of the third year, and the substitution of a more difficult Novelle for it in the first quarter. The year may then be completed with a study of "Hermann und Dorothea." The latter is rather difficult for third year work, but ought to be given in a three-years' course to get the pupils somewhat acquainted with Goethe. If the novel to be read in the third year, like all the other reading, also is based on real German life, we shall have a course which ought to be distinctively German, German not only in language but also in contents. Such a course will materially increase the pupil's sympathy with German life, without adding any more pages to this already large enough amount of reading.

"As a result of our study of the high school conditions in Illinois we suggest the following courses in reading to meet a common desire for standardization.

First Year of Course.

Readers dealing with the "Realien," second half of year.

Second Year of Course.

1. Readers (Completed)
(German legends and history in easy prose and poetry)
or 1. " " "
or 1. " " "

2. "Der Weg zum Glueck."
("Der Ruegenfahrer" and "Tot oder lebendig?")
2. "Immensee"
2. A good edition of "Der Neid."

3. "Aus Herz und Welt."
("Hundert Schimmel" and "Alle fuehn!")
3. "Der Schwiegersohn"
3. "Der Geissbub von Engelberg."

Third Year of Course.

1. "Karl Heinrich"
or 1. "Fritz auf Ferien"
or 1. "Die Journalisten"

2. "Wilhelm Tell."
2. "Minna von Barnhelm"
2. "Ekkehard"

3. "Der Schuss von der Kanzel."
3. "Herman und Dorothea."
3. "Goetz von Berlichingen" (As edited for high schools)

((Some of the above, like "Karl Heinrich" and "Ekkehard," can be read in class only in the abridged editions, especially prepared for American co-educational high schools.)

IV. Translation from German into English (Reported by Professor C. L. Esbjorn, Augustana College.)

Question No. 4 in the question blank sent out by the Committee reads as follows:—"To what extent do you use, or favor using, translation from German into English?" The answers received indicate a great diversity of opinion as well as practice. Though a number of the answers fail to give quantitatively exact information, it seems on the whole a fair inference from the statements made, that approximately one-half of the teachers insist on the translation of from fifty to one hundred per cent of the reading matter of their respective courses.

On the other hand, the amount of translation in the remaining one-half of the schools appears to be small.

Question No. 5 in the questionnaire was as follows: "*What are your substitutes for translation?*"

The leading answers may be grouped under three heads:—

First: Questions and answers on the lesson assigned, also reported as "conversation." This method takes different forms, such as; questions and answers in German; questions in German with answers in either German or English; oral or written discussion of grammatical constructions and principles; assigning the preparation of original questions to pupils, etc. One-half, or more, of the teachers make use of some form of questions and answers.

Second: Reproduction, "*freie Reproduktion*", or synopsis in German of the substance of the lesson. The number reporting this substitute for translation is almost one-half of the entire number.

Third: Reading the assignment aloud in class.

Those who employ reading by the class depend mainly on the expression with which the pupil reads, in deciding the question of his comprehension of the text.

Besides these three leading methods of testing a student's preparation of a reading lesson, the following are reported: Written exercises; written reviews; paraphrasing in German; German synonyms; definition of words in German; collecting idioms; dictation; "treating the language like the English;" retranslation of sentences of the teacher's invention based on the vocabulary of the text; "special topics, worked through a text, noting page and time of its appearance;" and a few others. A large number of teachers reporting using two, three or four of these "substitutes for translation."

As a great majority of the teachers who have reported are already employing translation into English to a greater or less extent, little need be said as to the advantages of this exercise. It cannot be successfully denied that translation furnishes an accurate method of ascertaining a pupil's comprehension of a passage in a foreign language. No paraphrase, no answers to questions, no elocution in the reading of a passage can give the immediate and incontrovertible evidence of its thorough comprehension furnished by a faithful translation. When the object, therefore, is simply to ascertain whether the foreign text is understood, no method is superior to translation. And yet it cannot be doubted that, with any class making good progress, the time soon comes when translation should cease, and other methods of hearing the reading lesson take its place. The first reason for this is that translation soon becomes to a great extent *superfluous*. If the reading material is properly graded, the class will ere long have mastered all the most common words and constructions, and the proportion of new words and phrases will in consequence be a constantly diminishing quantity. Translation thus tends to become more and more a useless repetition of what has been recited many times before. The second reason is that ability to translate into the vernacular is self-evidently not the ultimate object of the study of any foreign language. What our students must aim at is the ability to read German "as a German reads it." The teacher must therefore, when the proper time arrives, use every effort to wean the pupil from "the translation habit," and to induce him to adopt the "direct method."

This process must begin in the class room, and the writer is of the opinion that the end sought can be most surely and expeditiously attained by the simple plan of the teacher's reading the daily lesson aloud to the class and asking questions on it as he goes along. In this way the pupil gradually learns to follow the development of the thought in the foreign order and to catch the meaning directly from the foreign words. Translation being no longer required in class, the student naturally drops

it when preparing his lessons at home, and before he is aware of the transition, he is a reader, not a translator, of the foreign language. As a means of testing a student's preparation at every point, this method compares favorably with translation, since the teacher can stop at any moment, even in the middle of a sentence, to ask for the meaning of a word or phrase. A special advantage of the reading plan over translation is that it trains the ear as well as the eye of the pupil, since it is to be presumed that no one will attempt to instruct a high school class in German who is unable to read German with correct pronunciation and good expression. A lesson thus read over to the class, after preparation by the student, will often gain immensely in vividness and power to impress itself on the mind of the young learner. Another consideration in favor of this plan is that it is usually more rapid than translation. The gain in time may be estimated probably at fifty percent. The method may be varied by having the pupil do the reading; the special advantages of which exercise are sufficiently obvious.

But, excellent as the reading method is when properly used, it, too, eventually outgrows its usefulness. If the student is to read a sufficient amount to enable him to grasp the meaning of ordinary German at sight, he will sooner or later have to prepare home lessons too long, and with difficulties occurring too rarely, to make even the reading of the assignment in class profitable or practicable. Then is the time for free reproduction, for synopses, for questions and answers, or for these methods combined in various proportions.

To teachers who feel it to be their main object to impart to their pupils a reading knowledge of German, the writer would, therefore, recommend 1. Translation; 2. Reading aloud to class, followed by, or varied with, the reading *by* the class; 3. Free reproduction, questions and answers, synopses, or some similar method or methods. The exact point at which the transition should be made from the first stage to the second, and from the second to the third, must be left to each teacher's own judgment.

When learning to use the German language conversationally is considered the main object, or at least a leading object, the active use of the language on the part of a student must, as a matter of course, be introduced at the earliest possible moment and be continued in season and out of season. Then free reproduction, questions and answers, and similar methods from the beginning offer superior advantages.

The French group listened to an address in French by Professor Beck of the University of Illinois, on "The Professor of French in the Secondary Schools of France, Germany, and Austria."

He was followed by Professor J. D. Fitz-Gerald, of the University, who discussed "The Position of Modern Languages in the High School Curriculum."

In this discussion the speaker contended that the four-year preparatory to college course of the high schools contains little or nothing that is not demanded for entrance by the leading American colleges and universities. He then went into a somewhat extended comparison of the secondary schools of this and of leading European countries.

He closes his discussion with an argument for a more extended high school course. We quote as follows:

"If we could begin our High Schools with pupils of the age of twelve, as does Belgium, we could carry out a similar schedule adapted to our needs, and one year shorter, as just said. If we could begin our High Schools with pupils at the age of eleven, as the French schools do, and as Germany is thinking of doing, we should be able to carry out the whole of the Belgium schedule, adapted to our needs.

"In addition to the obvious advantage of allowing our pupils to begin their foreign language work at an earlier and better age, and to take up more languages and continue them longer, if such a six- or seven-year High School curriculum were adopted here, a very important advantage would be gained in connection with the teaching staff. The teachers, for the two or three extra years that would be taken from the present Grade Schools, would be High School teachers, appointed by High School Directors under standards of training that apply to High School teachers. Time was when the possession of an A. B. degree was considered evidence of ample training for the position of teacher in a High School. Nowadays the would-be High School teacher must generally be a man of University (not mere college) training, whether he be a Doctor of Philosophy or not. No Grade School principal, however strict he might be about his standards of training, would even dream of applying such standards in the case of teachers for Grade Schools.

"If such a seven-year High School curriculum were adopted here we could answer in the affirmative the questions quoted at the beginning of this address, and there would be room therein for the equivalent of the first two years of College French and the first two years of College German, without interfering with Latin, or Greek, or English, and it would not be necessary to begin two languages in any one year. A pupil so equipped is prepared to read the scientific output in his specialty no matter what the specialty may be, nor which of the four great languages that serve as media of intercommunication throughout the world, is the language that conveys the information; and he is prepared further to amuse himself in his leisure hours in a manner befitting his station. Such could not be said of the average graduate of our High Schools today, even in the case of those who pursue the preparatory course for the College of Liberal Arts."

MUSIC SECTION

The Music Section was called to order at nine o'clock by Mrs. Constance Barlow-Smith who welcomed the visitors from out of the city and stated briefly the purpose of the meeting.

A committee had been appointed to investigate conditions in music teaching in the High Schools in the State and this committee had its report ready for discussion, the same representing careful investigation and consideration. Next the speaker requested earnest co-operation upon the part of all who were interested in the proceedings and asked those who took part in the discussion to announce their names distinctly and the name of

the High School that was represented, also that they confine themselves as strictly to the subject under discussion as possible and eliminate personalities. Mrs. Smith said that the chief reason that the call had been made to assemble the supervisors of Music in the State was in the hope that a permanent organization might be effected whereby music as a cultural and necessary study in Illinois High Schools might be standardized.

The report of the committee appointed to investigate the conditions with regard to training in Music in Illinois High Schools was read by Miss Sallie J. McCall, Urbana High School.

REPORT OF COMMITTEE ON MUSIC IN THE HIGH SCHOOLS.

To the Members of the High School Conference of the State of Illinois, Greeting:

Your committee has made a careful investigation throughout the entire state and finds that the subject of music is taught in about sixty-five percent of the High Schools, and a much larger percent in the grades.

In the High Schools a lack of definite aim and uniformity is evident. This condition of affairs has been brought about largely by a lack of consideration upon the part of those in authority, inefficient teachers have been employed in many instances, and credits have not been allowed for good work. This lack of recognition has, by not furnishing an incentive, militated against the development of the subject.

In some schools, chorus singing is the only form of music study allowed. In some instances there are two or more divisions,— such divisions doing exactly the same line of work. There are some schools where show or exhibition work takes the lead, and again there are some in which the science of music and musical history are made the basis of the course, and singing is not lost sight of. Little or no credit is allowed for the work and the result is that the boys and girls turn away from the subject they love best to earn credits to enter the University. The qualified supervisors deplore their inability to alter the situation, and feel keenly the injustice of it. Unfortunately, some very good work in music that has been done in the grades is either undone or lost sight of in the high schools, much to the discredit of the latter. Therefore, in view of these facts, your committee would recommend that the attention of the members of this Conference to be directed to the necessity for an earnest effort and systematic co-operation to the end that a knowledge of, and a consequent development of a love for music, shall be given its proper place in the general scheme of education for the high school pupil.

(Signed)

MRS. CONSTANCE BARLOW-SMITH
C. E. LAWYER
SALLIE J. MCCALL

The chairman told of the effort made by the Committee to obtain a conservative report, that the basis of information was answers to a series of questions that was sent to each supervisor and instructor in Public School Music in colleges and high schools; also that many personal inquiries and visits had been made. She further stated that the best possible way to discuss

the report presented by the Committee was to ascertain conditions represented by the supervisors who were present, and compare them.

Miss Mary M. Denby of East St. Louis High Schools responded to the first invitation to speak and said that the work in music was elective, with daily recitations. About one-third of the pupils elect the subject which is divided into three departments—Rudiments of Music, Ear-Training, Harmony and Chorus work. They also have assembly singing for a few moments each day by the whole school. One credit is given for a year's work.

Miss Denby said in answer to the question as to the conditions in the St. Louis, Mo., Schools that it was largely chorus work; that there were two recitation periods per week for four years; that she understood there was credit given but could not state how much.

Miss Grace V. Swan, Township High School, Streator, said that music was elective, that it was divided into three divisions,—Chorus work, Musical History, Harmony. Musical History and Harmony each receive one credit a year. She has a glee club and an ocherstra. The members of each of these receive one-half credit a year.

Miss Annie C. Jewett, West Aurora. Music is elective. No credit is given. There are two half-hour lessons per week. At present she is only attempting chorus singing during the school lesson. Miss Jewett meets with small clubs in the homes for the purpose of creating and stimulating an interest in the subject.

Mr. Austin W. Inman, Fairbury. There is a two-year's music course. Out of one hundred fifty pupils sixty-five elect music. The work is principally chorus work and no credit is given.

Mrs. Stella Colins-Maher, Main Township High School, Park Ridge. Music is elective. There are one hundred fifty pupils in the high school, and one hundred elect music. The work is divided into three divisions—Chorus forty minutes; Harmony and History, forty minutes. Two twenty-minute Chorus periods by assistant. One credit per year.

At this point the chairman closed the discussion temporarily in order that the paper announced upon the program might be read. Mr. Charles H. Kingman, Principal of the Kankakee

High School was introduced and read a paper on "The Place and Importance of Music in the High School." The substance of this was as follows:

"In beginning this discussion of Music, I believe we must go back to a term which has often been defined, often quoted, and often abused—our 'Aim'. It would seem that every man who ever wrote a book on any educational topic felt duly bound to begin by defining this term, but out of the legion of definitions this one is good—"The Aim of Educational Work is to give the best preparation for life." It is broad; it is comprehensive; it is true. To best prepare a man to live, means, not only, that we shall train him to be a successful breadwinner, but that we shall train him so far as possible with the idea in view that he shall enjoy his life in the best and broadest manner, and help others to do the same. No man's life can be said to be complete if it has been closed to the influence of Music. The testimony of Charles Darwin is strong on this point. For over forty years the great scientist had worked unceasingly, night and day, trying experiments, collecting data, and leaving no stone unturned in his attempt to prove out the hypotheses which he believed were great natural laws. During this time his life was so wrapped up in his work that he utterly neglected many things that in his younger days had been sources of pleasure to him. Among these things was Music. During his last years he sought to turn from his scientific labors to the enjoyment of music, poetry and other forms of art which he had formerly loved, but sadly enough they did not respond to his bidding. The long one-sided development of his mind had done its work, and music and poetry and art had left him forever. His experience is convincing testimony to the fact that the best life is the one which reaches out and attains to a many sided development, and a making of ones own, not one, but many of the good spiritual and intellectual things of life. Certainly if our aim is to give boys and girls the best possible preparation for life we shall not be able to justify ourselves in neglecting this phase of their education.

"The historical argument is not without its value here. The history of educational work shows us that while different ages have laid special importance upon this study or that line of research, Music has always had its place in the curriculum.

"With so much by way of introduction let us turn to some definite reasons why the study of music is important in high schools.

"(1. First of all I believe it has a definite mission to perform as a culture study. It is almost trite to say that we live in a grossly material age. We live in a time when people are measuring everything by a material standard. Somewhat recently I had the pleasure of hearing Padrewski. The remarks heard about his concert were not principally in praise and wonder for his marvelous technique and wonderful mastery of his instrument. By no means; he was held in honor because of his fine earning capacity, and the fact that he had been paid \$3000.00 for three hours work was the thing which seemed to take prominence in many minds. We are not only living in a grossly material age, but we are also living in a particularly material state. Some two or three large centers may be less open to this criticism, but for the most part this statement will certainly hold. Fathers and mothers often object to their children taking history, or literature, or some kindred subject on the ground that it will not do them any good. When pressed for further explanation of what they mean it is soon seen that they cannot see how the study of these branches is immediately going to help their boy get a job.

"Drawing and music have been criticised as "new fangled fads," as

"expensive frills," but we have persisted in the frills just the same. As an illustration let me cite one case. A farmer, when 24 years of age came here from the old country, drifted to Illinois, and worked and saved early and late all his life. He has now retired with \$100,000 for his life's work and lives in the city—with nothing to do—a fish out of water. This man complained to us one day that the school tax was too high. He complained that he could not see what we did with so much time, or what we did with so much money. With great difficulty we persuaded him to visit our building, and see the work as it was being done. When he went away his parting word was, "Well, I guess you are all right maybe, but I wasn't educated up to it, and I can't see the fine points. I like to lie in bed at night and hear the rain come because I know the corn is growing, and I like to see the days go by because my cattle get fat." And so he went away. He saw nothing in the laboratories, even so blind that he failed to recognize the magician in the laboratory who can make his land yield manyfold more corn. For him fine apparatus and fine instruction, evidence of artistic work, and fine singing meant nothing. Why? His own words gave the answer, "He hadn't been educated up to it." I have dwelt upon this episode at some length because this man is typical of a vast number of parents in our state. They are honest, they are good people, they are good citizens, but their lives have been painfully narrow, and their vision is woefully short. For them Music and the fine arts have no value.

* * * * *

"(2) A second reason for the importance of music in the High School is its value as a pleasure producer. If our young people get some training in the rudiments they usually come eventually to take great pleasure in various forms of good music. Every other year the children of the public schools of Cincinnati sing in the May festival. At the last festival 600 young people from the schools took part. Under the training of Herr Vanderstucken they attained a degree of excellence in this performance that previously would not have been thought possible. They had rehearsed about once a week for most of the two years. They receive no pay whatever, but it was evident that their souls were in the work, and the gladness of their triumph was in their faces. It is difficult to write adequately of the joy that may come to one in taking part in some great musical event of this sort. You feel that you are helping in the creation of something splendid and worth while. This feeling has to be experienced to be understood. We have a Song Festival every year in our schools in which some five or six hundred grade children, and some high school students participate. It is good to see the faces of the children beam with happiness as they sing out in that sweet and wonderful chorus that children's voices alone can produce. If some of you have never tried a musical entertainment on this scale you have missed what may well be one of the happiest events of the school year.

"(3) The third reason which I am going to advance for the importance of music in the high schools is this; music may be made a very real and very effective source of inspiration in the realm of mind and spirit. This point may seem nearly a restatement of the preceding reasons, but if so, at least it may well be a re-emphasis of them. Anyone who has learned to love music will readily testify to times when inspiration has come from the symphony or the anthem with almost the definiteness and distinctness of a voice speaking. When Handel's Messiah was first produced in Dublin, when the choir reached the magnificent chords of the Hallelujah chorus the audience spontaneously rose to its feet and stood until the close. It is said that it seemed as if they stood in the very presence of God. In our high school we improve every occasion for obtaining the services of musicians to give programs before

the students. We encourage them all we can to go to hear artists when ever opportunity offers, on the theory that some of them may gain fresh inspiration and courage to push on to attain to something worth while. The person whose soul will not respond to the thrilling songs of Schumann-Heinke, or to the wonderful orchestration which the Danrosch, or Thomas, or Boston Symphony orchestras present, in a Wagner program certainly needs our help. I believe that an engineer who can enjoy good English and good music can also build better bridges, and that your busy doctor or lawyer who loves fine music is a better and bigger professional man than the ones who know only their briefs and their writs, or their hospitals and *materia medica*.

"(4) The fourth reason which appeals to me as an important argument for music in the high school is that we may properly guide and cultivate the musical taste of our young people. In the English Section of this Conference we annually listen to the common complaint of all English teachers that young people do not read the masters. Librarians show us that the only books which are in demand by the young people are the light ephemeral novels of the hour. The committee whose duty it is to map out the required reading for our English courses bend all effort toward counteracting this evil. Does not much the same thing prevail in the realm of music? The abashed masters have long since retired before the demoralizing revelry of King Rag Time. In these days almost every home where there is a daughter has a piano. The top of it will be covered many layers deep with "coon songs" and airs from the comic musical shows. Not satisfied with this alone many of them will also own a phonograph or a piano player which mechanically grinds out until midnight the tunes from 'Madame Sherry' or the "Blue Moon Girl." Most of these young musicians know as little of Wagner as they do of Milton, and would consider Bach as painful as the dictionary. The ideas that our young people have about music are sometimes very comical. One of our girls once went to a vocal teacher in the city and wished to engage to take some lessons. Her instructions were to the teacher that she knew pretty much about music already, but she wanted her to teach her to sing louder. Judging from the music which we usually hear the young people producing in their homes, I should think this girl came pretty close to expressing their guiding musical motive—noise, and more of it. Several music teachers have told me that young people have come to them and asked to take lessons in rag time and have gone away amazed and bewildered at the teacher's refusal. A glance at the conditions of other countries puts us to shame. Nowhere except in America can such a condition be found. The English people have their great choral societies, such for example as the Sheffield choir, in which old and young take part and the young people have constantly set before them in church, in school and in the home the best there is in music. In Wales all the people seem to be especially gifted musically, and there is great strife between schools and towns and churches to see who can do the best. In Germany and Italy and France one hears nothing but the best. Why is it we are content to feed upon the husks? It seems just as reasonable to me to allow our young people to go on debauching their musical taste, as it would be for us to sit down quietly and allow them to shape their literary inclinations by reading nothing but the Diamond Dick Library, or Bertha Clay's novels, or the funny sheet of the Sunday newspaper. Is it not an important, and a worthy work for us to bend our effort toward showing the girl who wants to play dance tunes, that Chopin wrote better waltzes than the ones she has been playing? Why may we not direct the young soloist to the delightful melodies of Schubert? Of course we cannot expect too much of

them at first. The Brahms's Symphony might seem to them as discordant and hard to understand as an Ibsen play, but there is much we may do and should do to guide them out of the national slough of ragtime, into the highway of good music. Summarizing briefly then it seems important to have musical work in the high school for at least four good reasons: (1) first, because through music we may in part combat the destructive materialism of our age; (2) secondly, it will acquaint our students with one of earth's greatest sources of legitimate pleasure; (3) thirdly, it may be a very great source of inspiration; (4) and finally, it seems to me a task well worth our while for us to reform the musical tastes of our young people.

"A discussion of the 'place' of music in the curriculum may well deal with some of our practical difficulties in this work. Some tax payers, and now and then a School Board will question the right of music in the curriculum at all, but we are grateful that they are in the minority. A trial of what music can do for children, especially their own children, is the best method of convincing them.

"Regular class work on an elective basis, with some chorus singing by the whole school has usually been found to be the best method in schools where it can be so handled. Compulsory singing always has its disadvantages. Boys and girls who sing well and lustily at parties or gatherings outside the school house sit mute and defiant when the compulsory music period comes around. Curiously enough they often seem ashamed to sing. This is more noticeable among the boys than the girls. If one boy is brave enough to sing out a little the others all look at him to see whether he is 'queer' or whether he is just trying, as they say, 'to start something.' So far as my experience goes, compulsory music is an utter failure, and might as well be abandoned. Much depends upon the teacher here as elsewhere. Some teachers by their enthusiasm and personality will get a good deal out of a compulsory music hour, but usually the plan is not successful. Some schools which can have music only once a week have devised the plan of creating a debating section, a literary section, a current topics section, etc., together with a music section. Each section meets in a different room at the same time, say the last period on Friday for example, and each student may choose at the beginning of the term which section he will attend. This plan usually works well.

"There are always a few who take music lessons outside the school, who become irregular in attendance and finally decide to drop out and study music altogether. Some principals have decided to allow them credit towards graduation for this outside work. This plan certainly has great merit and will tend to keep many in the high school that would otherwise drop out. One is often surprised to find what wonderful progress has been made in music by some students who have made poor records in their school work.

"In many places it has been found that glee clubs and musical societies are the best media through which the musical work of the school can be accomplished.

"In other places the Victrola has been found to be a great help in cultivating a taste for good music. The manager in Lyon & Healy's recently told me that 87 of his \$200.00 instruments had now been placed in the Chicago schools alone.

"Possibly more musical contests would be a good thing. Different schools compete in debating, in oratory and in athletics; why not in music?"

The speaker closed by moving the organization of a permanent Music Section of the Conference. After some discussion the motion prevailed.

The paper by Mr. Kingman was quite fully discussed, especially by the members of the faculty of the School of Music of the University. All seemed to concur with the sentiments expressed in the paper.

Adjournment was taken until two o'clock.

Further reports from high schools were given as follows:

Miss Ruth Duncan, Mt. Sterling High School, was the first speaker. She said that no credit was given for music in the Mt. Sterling schools, although the grade in music is averaged with the grades of other studies, which of course has a tendency to produce effort, as a low grade in music will lower the average. There are daily recitations of thirty minutes each. The work is compulsory and is divided into sections, Musical History, Ear-Training and Harmony, and Chorus work. Outside preparation is required. There is no objection raised by these students to compulsory music. A boys' chorus and a girls' chorus both meet after school for practice.

Miss Hazel Derby, Collinsville Township High School, said that two periods a week are devoted to Chorus work. No credit is given for this work and the practice is done outside of school hours. The musical organizations consist of a boys' and also a girls' glee club both of which practice after school hours. Miss Derby said that she was making an effort to introduce Harmony and Musical History.

Miss Jessie Crossman, Savannah Township High School, said that no credit is given for the work as only two half-hour periods a week are given it, and that outside of school hours. This work consists entirely of chorus singing. Miss Crossman has the following musical organizations: a double octet for girls, a treble cleff club, a boy's club, and the senior girls quartet.

Miss Horst, instructor in Music in the Murphysboro Township High School, reported that the work was divided into three sections. Rudiments of Music was given one-half credit.

Miss Augusta Sewell teaches music in Monticello, Cerro Gordo and Bement High Schools. She said that there is chorus singing one-half hour, twice a week in each town, also a girls' glee club and a boys' quartet but that no credit is given for the work.

Miss Marcelle Murray, Hoopeston High School, said that music was elective in Hoopeston. About one-third of the high

school students elected to study it, the number of boys and girls being about equal. The work is divided into two divisions—Chorus work and Musical History, Elements of Music and Ear-Training. Two periods of twenty minutes each are allowed for the work, and one-fourth credit is given each year for four years. The musical organizations are a boys' glee club and a girls' glee club. A contest is held each year for the purpose of determining the best boys' double trio, for which gold medals are awarded. The Master Musician forms the basis of high school work.

Miss Elizabeth McElroy, Arcola High School, stated that all her work had to be done after school hours, as the forty-minute periods in other subjects required by the University for accredited schools excluded music. She gives one ten-minute and two half-hour periods each week. The musical organizations are the girls' glee club, the boys' glee club and orchestra.

Mr. G. E. Alzeno, Thornton Township High School, said that he had a general chorus for one half-hour two days in the week, also daily recitations in Harmony with outside preparation which receives one credit. Orchestra two periods per week also receives one credit. Only four of these credits count for graduation.

Miss Marie Childs, Lovington Township High School, stated that music was elective, but no credit was given for the work. Three periods a week are devoted to chorus singing for the three upper classes. This is compulsory. Three forty-minute periods each week with a similar line of work is given to freshmen who elect the subject. There is also a boys' glee club and a girls' glee club.

Principal H. J. Alvis, East St. Louis, displayed a great deal of interest in the discussions and before leaving the room stated that he felt that the matter of giving credit was not of so much importance as the matter of standardization. He said he was certain that the high school principals would gladly arrange the credit system when the work was more definitely organized. In his estimation, standardization would solve the problem.

Miss Collins, of Chicago, said that it was difficult to persuade principals and superintendents that music was a necessary study; that in many cases no effort was being made to investigate the subject. She thought the paper that had just been read should be published and read in other meetings. She was

pleased to hear that in the cultured City of Oak Park, credit was not only given for outside work but a boy or girl who studied piano, voice, or violin might upon passing examinations receive credit for the special line of work done outside of school.

Miss Sallie J. McCall, Urbana High School, reported that her work included Elementary Harmony, Musical History and Biography, Musical appreciation, and seasonable standard Choruses. Two regular periods a week are devoted to the work for which one-half credit per year is given. The church choirs and the best local musicians furnish valuable gratuitous assistance. A boys' and also a girls' glee club practice outside of school hours for which one-half credit per year is given.

Mrs. Smith gave a brief summary of the work of the day and called attention to the fact that it was evident from the testimony of the supervisors present that while there was good work being done, it lacked uniformity. It should be the purpose of the committee appointed for the coming year to formulate a plan for standardization which should include not only Chorus work, Harmony, and Musical History, but a course in appreciation based upon the works of the Great Masters and the best of the latter day composers. Said report to be submitted to the Music Section of the High School Conference for consideration and discussion next year. She then asked for an expression of opinion as to the formation of this committee. It was moved that the chairman appoint the committee after taking time for consideration. This motion was seconded and carried. The members of this committee later appointed were:

Mrs. Constance Barlow-Smith, Chairman, University of Illinois.

Miss Sallie J. McCall, Sec'y, Urbana High School.

Principal C. E. Lawyer, Township High School, Danville, Ill.

Miss Grace V. Swan, Streator Township High School.

Miss Annus C. Jewett, West Aurora High School.

Principal H. J. Alvis, East St. Louis.

Miss Swan, Streator, moved that the paper presented by Principal Chas. H. Kingman, of Kankakee, be published. This motion was seconded and carried.

Miss Marcelle Murray, Hoopeston, moved that the minutes of the entire section be published: seconded by Miss Dorothy Green

and carried. The motion to adjourn was duly made, seconded, and carried.

NOTES. In nearly every instance the supervisors reported that examinations were given at least twice a year.

The Public School Methods Class in the School of Music attended the sessions and took notes as a class exercise. The faculty of the School of Music attended both sessions and added much to the interest of the meetings.

SALLIE J. McCALL,
Secretary.

PHYSICAL SCIENCES SECTION.

The morning session of this section was devoted to the discussion of topics relating to Chemistry. It met in the Physics Lecture Room, with C. H. Elliott of Carbondale, presiding. The main topic was Correlation of High School and College Chemistry. Dr. C. W. Balke of the University presented the University point of view. Following is a brief summary of his discussion:

A summary of the answers received from one hundred High Schools in reply to a questionnaire letter was presented from which it was found that nearly all of these schools teach the gas laws, Avogadro's hypothesis, the laws of combining weights, definite and multiple proportions, and the theory of valence. About 91 per cent. include a study of the theory of electrolysis, 88 per cent. teach ionization, 80 per cent. reversible reactions and chemical equilibrium, 79 per cent. the periodic system, 60 per cent. the methods used for the selection of atomic weights, and 50 per cent. the Gram Molecular Volume. Chemical problems are taught almost without exception. Qualitative analysis is taught more or less fully in about 40 per cent. of the schools. With regard to the text book the following result was obtained; Newell's chemistry is used in 30 per cent. of the schools, Brownlee and others in 27 per cent., Hessler and Smith in 16 per cent. McPherson and Henson in 11 per cent., and Remsen in 17 per cent. It was found that a large number of the schools use the single period of laboratory work.

After this data was presented, a brief comparison was made between the methods of presentation of several topics in the High School and in the University, and the position was taken that it is usually necessary for students who have had a High School course to repeat the work in the University, practically going over the same ground, but increasing their knowledge of the various elements and subjects involved, and going into them in greater detail. In conclusion the following suggestions in reference to the High School work were offered:— That the work should be less extensive but more intensive; that Qualitative Analysis should not be included in the first year's work; that the double laboratory period should be used if at all possible; that every effort should be made to present the work in such a way as to develop the thinking and reasoning power of the pupil.

Dr. Balke was followed by Mr. H. L. Geesling, of Elgin, who spoke from the high school point of view. We summarize his thought as follows: Since the ends in view from its teaching in high school and college are different, as are also the attitudes and ambitions of the respective students, there should be two points of view on the subject under discussion.

The teacher of chemistry is concerned in making chemists; the high school is not. The colleges are inclined to answer the question "Should high school and college chemistry be correlated?" in the negative; the high schools in the affirmative.

High schools lack definiteness of aims in teaching the subject. This is the chief cause of the confusion existing with regard to high school work.

As far as the high schools are concerned there are the following important points to be considered in the situation: 1. Our courses in Chemistry have failed to serve the needs of the individual. 2. We have been too much content with following old time methods. 3. We have been trying to cover too much and have covered too little thoroughly.

In undertaking to account for these conditions the speaker, referring to the teacher, said:

"He is often required to teach several other studies besides chemistry; his equipment in chemistry is often very meager for doing successful experimental work; besides, his class is composed of not only the boys and girls who are intelligent and ready to put forth their best efforts, but those that have but little taste for chemistry; the idlers and lazy ones; those who are not in school for work but there because they were sent; some interested in music, some athletics, etc., etc.,—in short—he finds his classes drawn from various strata of society, representing various sorts and varieties of natural and acquired tastes, talents and capacities. He is concerned with helping mould out of this mass a citizen of worthy type and also to help fit him for life and future usefulness in the busy world around him. Our courses for doing such, we might say, have been shaped to fit the needs of an indeterminate quantity called the "average student", and we have given to this indeterminate quantity a certain amount of reason, intuition and judgment rather than shape the course to the individual as he really exists. We have been spending so much time in teaching facts that we have been neglecting the more important duty, which is to help the student find out for himself, to know and use the power that lies within him. The value of chemistry as it concerns the boy is not measured by the number of formulas and chemical laws he may be able to repeat, but his power to observe and apply these laws to the phenomena around him."

A segregating of the strong pupils from the weak in the high school would help. Certainly some serious effort should be made at avoiding duplication of the work.

In conclusion the question of how to make the high school and college work more mutually helpful was answered as follows:

"FIRST: By the high schools agreeing on what they are to cover, and planning the work covering this field, more to meet the needs of the individual.

"SECOND: By offering only what can best be assimilated, and only so much as can be taught well in the time allotted to it.

THIRD: By a willingness on the part of the colleges to recognize and utilize every bit of work thus covered."

A general discussion followed, after which the committee on the revision of the chemistry syllabus appointed last year made its report which was as follows:

OUTLINE OF EXPERIMENTAL WORK IN CHEMISTRY.

1. PHYSICAL AND CHEMICAL CHANGES.

The experiments suggested in any of the manuals in the reference list, or in the text used.

2. THE PRODUCTION OF CHEMICAL CHANGES.

- a. Heat. Heat sugar in an evaporating dish.
- b. Electricity. Electro-plating with copper. (Instructor)
- c. Light. Expose blue print paper to light.
- d. Trituration. Rub together mercury and iodine in a mortar.
- e. Solution. (1) Mix baking soda and tartaric acid, both dry.
(2) Dissolve baking soda and tartaric acid separately in water and then mix the solutions.

3. MIXTURE AND COMPOUNDS.

4. OXYGEN.

- a. Preparation of oxygen.
 - (1) By heating mercuric oxide.
 - (2) By heating mixture of potassium chlorate and manganese dioxide.
- b. Properties of oxygen.
Color, taste, smell.
- c. Chemical behavior.
 - (1) At ordinary temperature on charcoal, sulphur and phosphorus.
 - (2) At higher temperature on charcoal, sulphur, phosphorus, iron wire or watch spring.
 - (3) Oxidation of all types.
 - (4) Combustion.
 - (5) Role of oxygen in life.
 - (6) Ozone.
- d. Weight of a liter of oxygen. (Instructor)
- e. Chemical Equations "begun".

5. HYDROGEN.

- a. Preparation of hydrogen.
 - (1) By electrolysis (Instructor)

- (2) By action of sodium on water.
- (3) By action of zinc and iron on dilute hydrochloric and sulphuric acids.
- (4) By action of zinc and iron on acetic acid. (Instructor)
- b. Properties.
 - (1) Color, odor, taste.
 - (2) Weight as compared with air. Leave bottle of hydrogen uncovered. Pour hydrogen upward from one vessel to another. (Fill soap bubbles or small toy balloons with hydrogen.) (Instructor)
 - (3) Diffusion. Occlusion.
- c. Kinetic theory of gases reviewed and extended.
- d. Chemical behavior.
 - Burning of hydrogen; heat of flame; color of flame.

6. WATER.

- a. Occurrence of water in wood.
- b. Hydrates.
 - (1) Heat crystals of copper sulphate; when white, treat with drop of water—Taste? Solubility?
 - (2) Heat alum on iron plate.
 - (3)
 - (a) Treat washing soda crystals as in (1)
 - (b) Exhibit and interpret crystals of various substances that are partially dehydrated. (Instructor)
- c. Efflorescence of sodium sulphate.
- d. Deliquescence of calcium chloride.
- e. Vapor tension reviewed or taught and then expanded to include gases, liquids, and solids.
- f. Vapor tension of gum camphor and moth balls used in explaining their uses.
- g. Decomposition of water by electric current. Reviewed. See VL. (1)
- h. Displacement of hydrogen from water by iron.
- i. Synthesis of water by means of eudiometer. (Instructor)
- j. Synthesis of water by means of hydrogen and copper oxide. (Instructor)
- k. Distillation of water. (Instructor)
- l. Simple tests for impurities in water.
 - (1) Organic matter.
 - (2) Chlorides.
 - (3) Carbonates and bicarbonates.
 - (4) Calcium compounds.
 - (5) Sulphates.
- m. The treating of water for industrial, sanitary, domestic, etc., purposes.
- n. Solutions.
 - (1) Molecular theory† of solutions. Kinetic theory further extended.
 - (2) Physical equilibria†† of the gaseous liquid and solid states of a substance.

*Indicates option.

†See especially "General Chemistry" by Alexander Smith; Chaps. IX & X.

††General Chemistry by Alexander Smith, pp. 115 to 127; also McFarland's Principles of Chemistry, pp. 144-154, and Richard's Industrial Water Analysis Notes for Engineers.

7. CHLORINE.

- a. Preparation.
 - (1) Making chlorine by means of hydrochloric acid and manganese dioxide.
- b. Properties of chlorine.
- c. Chemical behavior of chlorine.
- d. Bleaching. Commercial uses of bleaching. Commercial manufacture of bleaching powder.
- e. Commercial manufacture of chlorine by the Deacon process. Liquid chlorine. CATALYTIC ACTIONS. ACTION OF MANGANESE DIOXIDE AND POTASSIUM CHLORATE REVIEWED. ACTION OF POWDERED GLASS OR SAND WITH KClO_3 .
- f. (1) Dry steam and chlorine when heated yield hydrochloric acid and oxygen, thus 2Cl plus H_2O equals 2HCl plus O
 - (2) Hot gaseous 2HCl and oxygen yield water and chlorine thus : 2HCl plus O equals H_2O plus Cl .
 - (1) and (2) are reversible reactions.
- g. Chemical equilibrium developed.

8. HYDROCHLORIC ACID.

- a. Preparation of hydrochloric acid from sodium chloride and sulphuric acid.
- b. Properties of hydrochloric acid.
- c. Chemical behavior of hydrochloric acid.
- d. Commercial manufacture of hydrochloric acid.

*9. FLUORINE.

*10. HYDROFLUORIC ACID.

- a. Preparation from calcium fluoride. Properties.
- b. Etching of glass.

*11. BROMINE.

Preparation from potassium bromide.
Study of properties.

*12. HYDROBROMIC ACID.

Action of sulphuric acid on potassium bromide.

*13. IODINE.

- a. Preparation from potassium iodide.
- b. Properties.
 - Solubility in water, alcohol, potassium iodide solution and carbon disulphide.
- c. Tinctures. Manufacture and use.
- d. Effect on starch paste.
- e. Displacement of iodine from potassium iodide by means of chlorine and bromine.

*14. HYDRIODIC ACID.

Action of sulphuric acid on potassium iodide.

15. ACIDS BASES AND SALTS. IONIZATION.

Effects of ionogens upon the boiling point and freezing point, upon osmotic pressure. Molecular weight. Use of theory in calculations.

Modern methods of making water analyses.

- a. Test distilled water: (1) as to taste, (2) action on litmus, (3) conductivity.
- b. Repeat 1, 2, 3, of a, using solution of sodium hydroxid (Caustic soda). Try its solution effect on solution of ferric chlorid. A substance which in solution has such action is called a BASE.
- c. Repeat 1, 2, 3 of a, using solution of hydrogen chlorid (Hydrochloric acid). Try its action on baking soda. A substance whose solution gives such effects is an ACID.
- d. To 5cc. sodium hydroxid solution add hydrochloric acid drop by drop with constant stirring till a strip of litmus suspended in the solution is just violet in color. Evaporate to dryness, moisten with water and dry again. Repeat b and c using solution of this solid. Such a substance is a SALT and the process by which it is obtained is NEUTRALIZATION.

16. VALENCE.

17. KNOWLEDGE OF CHEMICAL EQUATIONS EXTENDED.

18. NEUTRALIZATION.

19. LAW OF DEFINITE PROPORTIONS.

20. LAW OF MULTIPLE PROPORTIONS. (QUANTITATIVE)

Find the relative weights of oxygen entering into the composition of potassium chlorate and potassium perchlorate.

Apparatus—Two hard glass test tubes, two plugs of glass wool; horn-pan balances, or two porcelain crucibles No. 0 with covers, two pipe stem triangles, gauze, two ring stands or tripods, two Bunsen burners or other sources of heat.

- a. Arrange the two test tubes with a wire hook for convenience in weighing. Weigh the tubes.
- b. In tube or crucible No. 1 take from 1.5 to 2.00 grams of powdered potassium chlorate. Weigh and calculate the weight of the chlorate. Insert a loosely fitting plug of glass wool in the mouth of the test tube and weigh again.
- c. In tube or crucible No. 2 take about the same weight of powdered potassium perchlorate. Weigh and calculate the weight of the perchlorate. Insert plug of glass wool as in 'b' and weigh again.
- d. Treat each tube in turn as follows: Gradually melt the contents of the tube and boil as long as effervescence continues. As the contents of the tube become solid, increase the heat, constantly rolling the tube in the flame to prevent fusing it, until the last trace of evolution of gas is removed. Finally heat that part of the tube containing the glass wool.
- e. Weigh the tubes with their contents. Note the loss. Calculate the weight of the white residue in each. The loss represents oxygen evolved. The white residue represents potassium chloride remaining.
- f. Make the following observations:
 - (1) Weight of potassium chloride obtained from the potassium chlorate equals?

Weight of oxygen obtained from potassium chlorate equals?

Weight of potassium chloride obtained from Potassium perchlorate equals?

Weight of oxygen obtained from potassium perchlorate equals?

- (2) From the data (1) calculate by direct proportion the weight of oxygen in combination with one gram of potassium chloride in the potassium chlorate. Let us call this x .

Find the relative weights of oxygen entering into the compound. Likewise calculate the weight of oxygen in combination with one gram of potassium perchlorate. Let us call this y .

- (3) What simple ratio exists between x and y ?

NOTE. If crucibles are used it should be noted that since the chlorate melts soon after the heat is applied and that the evolving oxygen frequently causes the chlorate to spatter on the inside of the cover, great care must be taken to remove the cover from time to time (lowering the flame meanwhile) and by laying same ring side down remove with a pointed rod the excess chlorate and return it to the crucible. As the temperature increases the mass solidifies. Increased heat drives off more oxygen. When all oxygen has apparently been driven off remove the cover and heat the open crucible for ten minutes.

21. LAW OF EQUIVALENT PROPORTIONS. (QUANTITATIVE)

- A. To measure by volume and calculate into weight the quantity by hydrogen liberated from hydrochloric acid by a given mass of zinc, magnesium and aluminium. The metals should be pure and thoroughly cleaned before weighing.

Apparatus: A 16 oz. flask with a perforated cork and two inches of glass tubing, pure granulated or sheet zinc, piece of platinum wire, a 100 cc. graduate, pan or tank of water, thermometer, barometer and horn pan balances.

- a. Fit the flask with the cork and tubing, letting the tubing project about one inch inside the cork. Measure accurately including the tubing. To do this, fill the flask level full of water, insert the cork and press it into place. The excess of water will run out through the tube leaving it also full of water. Make a mark on the neck of the flask where the bottom of the cork comes so that the cork can be inserted to the same point each time. Measure the water in the flask. At least two determinations of this quantity should be made. Take about 1.2 grams of bright zinc and weigh accurately to centigrams. Wrap the platinum wire around the zinc.
- b. Put about 50 cc. of conc. hydrochloric acid in the flask and fill level full with water. Have the tank of water and the perforated cork all ready. Quickly slap the zinc into the flask, insert the cork, place the forefinger over the end of the glass tube in the cork and invert in the tank. See that the cork is inserted to the mark 'a'. If the acid solution is of the right strength and the operation is done quickly the hydrogen will not begin to be evolved until after the flask is inverted in the tank.

Then it will rise and drive out the acid through the tube in the cork. Let the action proceed until all the zinc has disappeared. If these directions are closely followed, the hydrogen evolved will not entirely fill the flask. As it takes some time for all the zinc to combine with the acid it is well to let the apparatus stand over night.

- c. When the action is complete and the contents of the flask and tank are at the same temperature as the room, record the temperature of the gas. Raise or lower the flask until the water on the inside stands at the same level as the water on the outside. Then place the finger over the end of the tube in the cork and remove the flask with its contents from the tank. Handle the flask by the neck so that the heat of the hand will not cause the hydrogen to expand. Measure very carefully the number of cubic centimeters of water remaining in the flask, being careful to include that in the glass tubing, and subtract this quantity from the original of liquid in the flask. The difference is the volume of hydrogen evolved. Take the barometer reading.

- d. Correction of gas volumes by simple proportion based upon physics previously learned.

NOTE. For the equivalent of magnesium use from .30 to .40 of a gram of clean pure magnesium ribbon slipped into a short glass tube so that it will sink. Use warm water and warm concentrated hydrochloric acid.

For the equivalent of aluminum use from .30 to .35 of a gram of bright aluminum wire or foil. Use hot water and hot con-

(a) Boyle's law.

(b) Charles' law.

(c) Aqueous tension.

(d) a, b, and c reviewed and expanded and applied in the correction of gas volumes.

22. LAW OF EQUIVALENT PROPORTIONS. (CONTINUED)

- A. Find the relative weights of zinc and oxygen which combine with each other. It is impracticable to do this by direct combination. The method is to dissolve zinc in nitric acid, producing zinc nitrate, dry this, then ignite it, and thus produce oxide. (Use any one of the ignition methods which are fully described in the various manuals.)

23. THE LAW OF EQUIVALENT PROPORTIONS (CONTINUED)

- B. Find the relative weights of magnesium and oxygen which combine with each other.

Apparatus—Covered crucible, No. 0, triangle, horn-pan balances.

- a. Weigh the crucible; weigh the cover. Place in the crucible about .3 gram powdered magnesium; cover and weigh. Calculate the weight of the metal.
- b. Place the covered crucible on the triangle supported on the ring stand, heat gradually and evenly to bright redness with the blue flame. Continue to heat for five minutes, slightly raising the cover from time to time to admit air. White fumes must not be allowed to escape. When the metal ceases to glow and no more fumes form, remove the cover and heat the gray mass strongly until it becomes white, stirring occasionally with an iron wire. Do not lose any of the residue. Cool and weigh. Determine the weight of the white powder which is magnesium oxide.

c. Observations.

- (1) The weight gained is oxygen taken up. Calculate its amount.
 - (2) Calculate the weight of magnesium which would be required to combine with 8 grams of oxygen.
- d. Compare the quantitative results obtained by different members of the class. Average the results.
- e. Compare the results obtained in 21, 22, and 23. What inferences may be drawn in regard to the combining weights of hydrogen, zinc, oxygen, magnesium and aluminum?

24. AVOGADROS HYPOTHESIS.

25. THE ATMOSPHERE.

- a. Proportion of oxygen and nitrogen by the phosphorus method.
- b. Proportion of O and N by the pyrogallie acid method.
- c. Presence of water vapor by means of calcium chloride.
- d. Presence of carbon dioxide by means of lime water. Ventilation. Recent researches on effects of CO₂
- e. Weight of liter of air. (Instructor)
- f. Dust in the air.
- g. Atmospheric pressure.
- h. Humidity and health.
- i. Biology and physiography of the air, touching especially c, d, f and h.
- j. The rare elements of the atmosphere. Argon, helium. For several good experiments, see various H. S. manuals in Physiography.
krypton, neon, xenon.
- k. Liquid Air, Low temperatures. Commercial preparation of liquid oxygen.
- l. Study of the element, nitrogen.

26. AMMONIA.

a. Preparation of ammonia:—

- By means of ammonia chloride and calcium hydroxide.
- b. Properties.
- c. Chemical behavior:
- d. Artificial refrigeration.

- (1) Freeze water surrounding a test tube containing ether which is vaporized by pumping through the same a stream of air by means of a bicycle pump.
Effects of the reduction of pressure upon a gas reviewed and expanded. Critical temperature and pressure.
- (2) Evaporate ether in a watch glass immersed in water by placing same under receiver of an air pump and exhausting the air.

27. NITRIC ACID.

- a. Preparation of nitric acid from sodium nitrate.
- b. Chemical behavior of nitric acid.
- c. Solubility of nitrates.
- d. Reduction of nitric acid by means of nascent hydrogen and formation of ammonia.
- e. The manufacture of nitric acid and nitrates by means of electricity.

28. NITRIFICATION.

Soil bacteria. Commercial methods in use.

29. OXIDES OF NITROGEN.

- *a. (1.) Preparation of nitrous oxide ammonium nitrate. Properties of nitrous oxide. (Instructor)
- (2.) The production of anaesthesia. Modern methods in use in surgery and dentistry.
- *b. Preparation of nitric oxide by means of copper and nitric acid. Properties of nitric oxide.
- c. (1.) Preparation of nitrogen peroxide from nitric oxide by contact with air.
- (2.) Formation of NO_2 from NO by contact with the air at ordinary temperatures. The formation of N_2O_4 from NO_2 at lower temperatures. Conditions of dissociation. Equilibrium equations.

30. PHOSPHORUS.

- a. Examination and comparison of yellow phosphorus and red phosphorus.
- b. Action of phosphorus and iodine.
- c. Preparation of phosphine. (Instructor)

31. ARSENIC.

- a. Examination of the element. Examination of arsenic trioxide. Reduction of arsenic trioxide.
- b. Preparation of arsine and decomposition by heat. Marsh's test for arsenic.
- c. Insecticides and fungicides.

*32. ANTIMONY.

- a. Properties.
- b. Preparation of stibine. Comparison with arsine.

*33. BISMUTH.

- a. Properties.

34. PERIODIC GROUPING DISCUSSED. See references under Periodic Law.

35. SULPHUR.

- a. Properties.
 - (1) Examinations of roll sulphur.
 - (2) Preparation and examination of amorphous sulphur by distillation of sulphur and condensing in a beaker of cold water.
 - (3) Preparation and examination of monoclinic sulphur by cooling molten sulphur in a crucible.
 - (4) Preparation and examination of rhombic crystals of sulphur by decomposition from carbon disulphide solution. (Instructor)
- b. Chemical behavior of sulphur. Action of heated sulphur upon iron filings and copper foil. Formation of sulphur dioxide by burning.

36. HYDROGEN SULPHIDE.

- a. Preparation from ferrous sulphide.
- b. Properties: Solubility in water, combustion. Use of hydrogen sulphide as a precipitant of metals from solution.

37. SULPHUR DIOXIDE.

- a. Preparation.
 - (1) By burning sulphur.
 - (2) By action of copper upon sulphuric acid. (Instructor)
 - (3) By action of sulphuric acid upon sodium sulphite.
- . Properties. Color, odor, solubility in water, action of solution toward litmus, bleaching powder.

*38. SULPHUR TRIOXIDE.

Preparation by passing sulphur dioxide and air over platinized asbestos. (Instructor.)

39. SULPHURIC ACID.

- a. Preparation from sulphur trioxide. (Instructor)
- b. Preparation by lead chamber process. (Instructor)
- c. Commercial manufacture of sulphuric acid by the contact process. Catalytic action reviewed and expanded.
- d. Properties of sulphuric acid.

*40. ADDITIONAL THEORY.

- a. Molecular masses.
 - (1) Vapor density methods.
 - (2) Osmotic pressure methods.
 - (3) Boiling point and freezing point methods.
- b. Atomic masses.
 - (1) Exact atomic masses.
 - (2) Law of Dulong and Petit.
 - (3) Determination of formula of a compound.
- c. Laws of Simple and multiple Volumes.
- d. Thermochemistry.
 - (1) Law of Dulong and Petit reviewed.
 - (2) Definition of units.
 - (3) Heat of formation.
 - (4) Heat of reaction.
 - (5) Typical exothermic and endothermic reactions.

41. CARBON.

- a. Use of charcoal or boneblack as filters.
- b. Action of oxygen upon heated carbon; showing the formation of carbon dioxide by its action on lime water.
- c. Reduction of copper oxide by means of charcoal.

42. CARBON DIOXIDE.

- a. Show presence of carbon dioxide in breath by means of lime water.
- b. Liberation of carbon dioxide from carbonates by means of acids.
- c. Properties of carbon dioxide:
 - Color, odor, taste, weight as compared with air, effect upon flame or spark, action of carbon dioxide upon caustic potash or lime water. Show how presence of carbon dioxide in water causes calcium carbonate to dissolve.
- d. Decomposition of carbon dioxide by burning magnesium.
- e. Oxidation of powdered charcoal by means of potassium nitrate.

43. CARBON MONOXIDE.

- a. Preparation of carbon monoxide from oxalic acid.
- b. Properties: Burning carbon monoxide. Reduction of copper oxide by carbon monoxide.

44. ADDITIONAL COMPOUND OF CARBON.

- a. Acetylene, etc.
- b. Soaps.
- c. Alcohols.

45. STUDY OF FLAMES.

- a. Flame produced by jet of illuminating gas in atmosphere of air or oxygen. (Flame produced by jet of oxygen in atmosphere of illuminating gas. Instructor)
- b. Kindling temperature of gases. Instructor
 - (1) Try lighting gas by means of hot wire estimating kindling temperature by shade of wire which will ignite flame.
 - (2) Cooling effect of wire gauze on burning gas. Application to safety lamp.
- c. Structure of flame. Reduction of oxides and oxidation of metals by means of blow pipe.

*46. BORON

Preparation of boric acid from borax. Flame test. Borax beads.

47. SILICON.

- a. Preparation of silicic acid. Water glass.
- b. The manufacture of glass. The kinds of glass.
- c. The manufacture of carborundum.

48. LITHIUM.

49. SODIUM.

- a. Examination of piece of sodium, action of air upon it, action of sodium upon water reviewed.
- b. Electrolytic preparation of sodium hydroxide.
- c. The commercial manufacture of sodium carbonate and sodium bi-carbonate. Uses in the arts and in daily life.
- d. Sodium in agriculture.
- e. Sodium amalgam.

50. POTASSIUM.

- a. Examination of piece of potassium; action of air upon it; action of potassium upon water. (Instructor.)
- b. Extraction of potassium carbonate from wood ashes.
- c. Manufacture of potassium hydroxide from potassium carbonate.
- d. Potassium in the industries and in daily life.
- e. The manufacture of fertilizers by electrical methods.

51. AMMONIUM.

- a. Preparation of ammonium amalgam from sodium amalgam and ammonium chloride.
- b. Theories of classification of ammonium based upon experimental evidence in (a) and in references cited.

52. TEST FOR ALKALI METALS.

- a. Action of alkalis on ammonium salts reviewed.
- b. Detection of members of alkali group by means of flame tests.

53. THE PERIODIC LAW. STUDY OF CURVES. THEIR SIGNIFICANCE. RECENT INVESTIGATIONS.

References: Newth's Inorganic Chemistry; Alex. Smith's General Chemistry; Remsen's College Chemistry; Hessler & Smith's Essentials of Chemistry; Dobbin & Walker's Chemical Theory; Venable's Rise and Development of the Periodic Law; Mendeleeff's Principles of Chemistry; Science—June 29, 1900, July 6, 1900, Nov. 10, 1911.

54. CALCIUM GROUP.

- a. Preparation of calcium chloride from limestone.
- b. Preparation of lime from limestone.
- c. Slaking lime—manufacture of lime water; use of lime water to detect carbon dioxide.
- d. Manufacture of Plaster of Paris from Gypsum; use of Plaster of Paris.
- e. Preparation of Calcium Carbide.
- f. Cements. The cement industry. Mortar.
- g. Test from calcium by formation of calcium oxalate in solutions.
- h. Flame reactions of barium, strontium and calcium.
- i. Comparison of the elements of the calcium group and their compounds.

55. MAGNESIUM.

- a. Examination of magnesium.
- b. Burning of magnesium.
- c. Citrate of magnesium. Uses.
- d. Commercial uses illustrated in face powder, pipe covering, electric fuses, etc.
- e. Test of magnesium.
- f. Preparation of compounds of magnesium from magnesite.

56. ZINC.

- a. Examination of zinc.
- b. Action under blow pipe.
- c. Study of paints.
- d. Action with acids reviewed.
- e. The formation of zincates. Explained by ionic theory.

57. COPPER.

- a. Examination of copper.
- b. Action with acids.
- c. The preparation of $\text{Cu}(\text{NO}_3)_2$.
- d. Displacement of copper from its compounds by zinc and iron.
- e. Precipitation of copper sulphide by means of hydrogen sulphide.
- f. The refining of copper by electrolytic deposition.
- g. Oxidized copper.
- h. Alloys.
- i. Hydrates.
- j. Flame tests.
- k. Cuprous compounds.
- l. Insecticides and fungicides.

58. MERCURY.

- a. Examination of mercury.
- b. Action with acids.
- c. Mercurous and mercuric compounds.
- d. Amalgams. Use in electrical work.
- e. Preparation of Nessler's solution by the student. Uses.

59. SILVER.

- a. Examination of silver.
- b. Preparation of silver nitrate from a ten cent piece.
- c. Formation of silver chloride in solution. Action of light upon halogen compounds of silver. Photography.
- d. Reduction of silver chloride by means of zinc and dilute sulphuric acid.
- e. Action of silver under blow pipe.
- f. Common industrial processes for the preparation of silver.

60. ALUMINUM.

- a. Study of aluminum.
- b. Action with acids and alkalies.
- c. Precipitation of aluminum hydroxide. Sodium aluminate.
- d. Testing of alums for ammonium and potassium.
- e. Make alum from clay.
- f. Mordants and lakes. Dyeing.
- g. Electrolytic preparation of aluminum.
- h. The ceramic industries.
- i. Domestic uses of the metal.
- j. The glass industry reviewed and additional processes studied.
- k. Ceramics.

61. LEAD

- a. Examination of lead.
- b. Action with acids.
- c. Action under blow pipe.
- d. Action of nitric acid on red lead (minium). Action of red lead under blow pipe.
- e. A comparative study of the oxides of lead.
- f. A study of the carbonate in paints.
- g. Ionic studies of lead.
 - (1.) In storage batteries.
 - (2.) Action of water on lead pipes. Pitting of boilers.
 - (3.) Electrolytic action on pipes.

62. TIN.

- a. Examination of tin.
- b. Action with acids.
- c. Reduction of mercuric chloride by stannous chloride.
- d. Tin salts as mordants. Lakes.

63. IRON.

- a. Examination of iron.
- b. Action of iron with acids.
- c. Change of ferrous compounds to ferric compounds and conversely.

- d. Commercial methods of preventing corrosion. Bower's Barff process.
- e. The industrial preparation of iron. Vanadium steel. Tungsten steel.

*64. MANGANESE.

Reduction of potassium permanganate by means of ferrous sulphate.

*65 CHROMIUM.

- a. Action of acids on chromates and alkalies on dichromates.
- b. Use of chromium compounds in dyeing.
- c. Pigments.

66. GOLD.

- a. Properties of gold.
- b. Action with acids. Solution in aqua regia.
- c. Test for gold. Reduction with stannous chloride and formation of purple of Cassius.

The Present-day Teaching of Physics was the leading topic for the afternoon. Mr. C. E. Linebarger, Lake View High School, Chicago, gave the leading address which he has summarized as follows:

"In teaching physics it is first essential to present a clear statement of the problem in a language which the student already understands, then take the results obtained and put into execution in order to lead up to further investigation. The problem is to impart as much of our learning as possible with the minimum exertion of the high school pupil. The instruments necessary for science teaching are: (1) Teachers, (2) Laboratory, (3) Text-book. The number of new things are comparatively small in the text-book. The industrial application of Physics is very slight because it bristles with technical terms and lack of time. Another thing entering into our teaching is appeal to the historical side which is largely overdone, where a sketch of the thing done would be better for sticking to the pupil's mind. The adolescent mind demands something it can tuck away and call upon when it needs it—clear cut definitions with their true significance. The substitution of a picture, diagram or an idea is very important and extremely valuable. Classroom demonstrations should be extremely simple so that the pupil by the eye alone can grasp the idea of the experiment. Laws or principles should be retained by the students so as later to be of working value. Avoid words when you can use algebraic terms which they are familiar with and not use words that in every day life have a different meaning. Impress the student that Physics is a much harder subject to learn for the credit received in proportion to other subjects, owing to the fact that every thing is new. It is also necessary to prepare for the super normal pupils to keep up interest by assigning them special work which you judge would be of most interest to them.

"The laboratory is second in importance to the teacher. The work should be arranged to verify the laws, and have a different angle of approaching the problems from the text book. Get all you can out of an apparatus regardless of the percent of error, and all experiments should be definitely connected and related.

"There is a great improvement over the knowledge of former teachers and still there is a great need for improvement."

This was followed by a general discussion opened by Supt. C. B. Whitehouse, Augusta.

After this discussion the committee on revision of the Physics syllabus made a report which was referred back for further consideration.

SOCIAL SCIENCE SECTION

The Social Science Section met in the Chapel, with Professor C. W. Alvord presiding. The general topic for discussion was "The Equipment of History Teachers." The first paper was by Professor C. M. Dickerson of Macomb, who discussed "Some Neglected Phases of Civics." He attributed much of the present condition of low standards in the teaching of history and civics in high schools to the lack of specific entrance requirements for these subjects by the Universities.

He held that the object of civics in high school training is primarily to prepare for citizenship. He pointed out that such equipment should include (1) a knowledge of our form of government; (2) a knowledge of the machinery of government and its working; (3) a knowledge of the functions of government, or what conditions it ought to produce. The speaker declared that our high school graduates are not now prepared; that the civics which should be taught in the high school was now taught in the colleges. This, he said, was owing partly to lack of preparation of teachers, and partly to imperfections in the texts used.

He attributed much of the popular indifference to corruption in politics to a lack of knowledge of the real functions of government, and the misplacing of emphasis in teaching on office instead of on the functions of government.

Principal H. S. Magill, of Princeton, spoke on the same subject. He urged that the teaching of the form of government should be the foundation merely for the far more important thing of a deep consciousness of personal responsibility in the age-long struggle to embody right and progress in the workings of our government.

He believes that the present methods of teaching civics neglect (1) a sufficient study of what we are doing, and why. (2) The personal share of the individual citizen in our government.

He closed with an earnest plea for a better and fuller comprehension on the part of teachers of the magnitude of the present problem of maintaining an incorruptible democratic form of government, and that our methods of instruction be so modified as to gain this end.

Superintendent W. A. Furr, of Jacksonville, followed with a paper on "The Preparation of the Teacher for High School Work in History." He presupposed both the preparation in scholarship and professionally demanded by the Committee of Seventeen, and the personality and enthusiasm necessary to success in teaching. He also emphasized the necessity of a right view as to the aims and functions of history teaching.

Mr. Furr enumerated present deficiencies as follows: (1) Failure to comprehend history as a life process. (2) The omission of interpreting principles. (3) Failure to apply the psychology of adolescence to the history courses offered and the methods used. (4) Lack of recognition of individuality in the students which often results in a failure to suggest specific helps for a carefully analyzed need.

It was further urged by the speaker that in the training of the teacher there be maintained a closer relationship between the academic and professional phases of his study.

Superintendent M. L. Test, of Mt. Sterling, discussed the same topic. He said that the teacher needs two things:

- (1) A knowledge of subject-matter.
- (2) An adequate conception of its place and function,—or *why* it is taught.

In addition to this he should be widely read, sympathetic, should know both high school and university conditions, and should be active in civic affairs.

Professor Lawrence Beyer, of Normal, urged that those preparing to teach history be shown clearly

- (1) High School conditions, as they are in Illinois.
- (2) The aims of History teaching.
- (3) The interdependence of History and other subjects.
- (4) The material needed in High School History.
- (5) Practice teaching under competent supervision.

GENERAL DISCUSSION.

Professor Larson offered two practical suggestions offering aid to those who wish to realize the ideals expressed by earlier speakers on high school civics teaching:

- (1) Eliminate work done in grades.
- (2) Use daily newspapers.

Doctor Felmley called attention to the fact that the daily paper does not instill the highest ideals of political life, and urged the teaching of live issues, the discussion of present-day policies, as a remedy for formalism in teaching and the consequent indifference to corruption.

Dean Green referred to the History Teachers' Magazine in this connection.

Mr. Magill spoke again, on the spirit of representative government. Dean Greene called attention to the value of history in presenting the subject of Civics, and Professor Alvord said a word in defense of the unjustly maligned scientifically written History.

Professor W. S. Robertson presided at the afternoon session. Three papers, on the subject of the Assignment of Lessons in History, were read, by Miss Victoria Adams, of Calumet High School, Chicago; Principal Bertha A. Miller, of Paris; and Mr. U. S. Parker, of Quincy. Miss Adams gave several general principles underlying correct assignment, and illustrated by a number of examples. Miss Miller urged especially two requisites for the ideal recitation-definiteness, and careful preparation on the part of the teacher. Mr. Parker again emphasized the need of definiteness in assignment, and elaborated the device of the question in the assignment by detailed analysis and illustration.

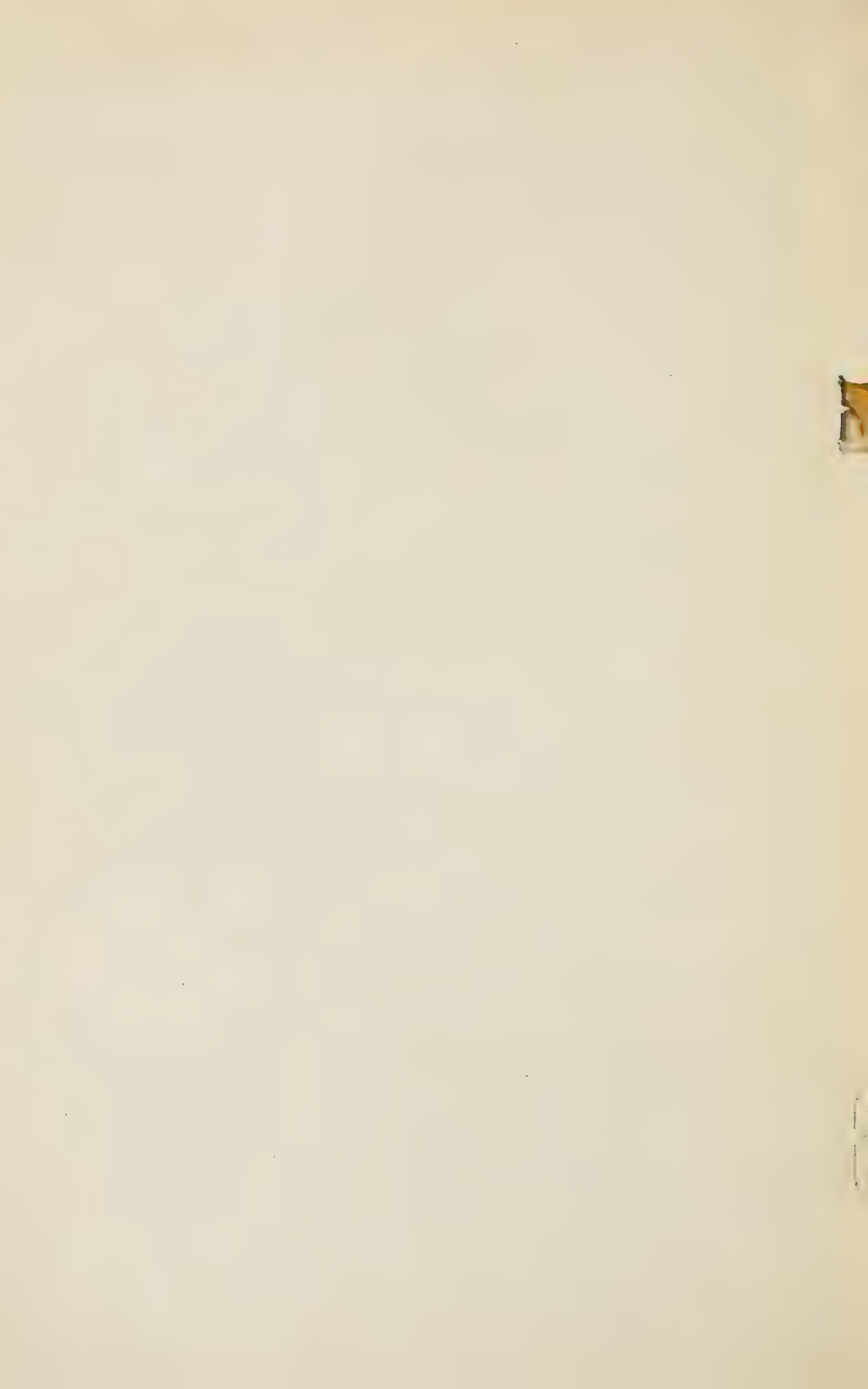
After a general discussion, Mr. Echols, Chairman of the Executive Committee of the Social Science Section, read a tentative plan for a Syllabus in American History. The Section instructed the members of that committee, with such other members as they may see fit to add to their number, to prepare such a syllabus for use in Illinois High Schools.

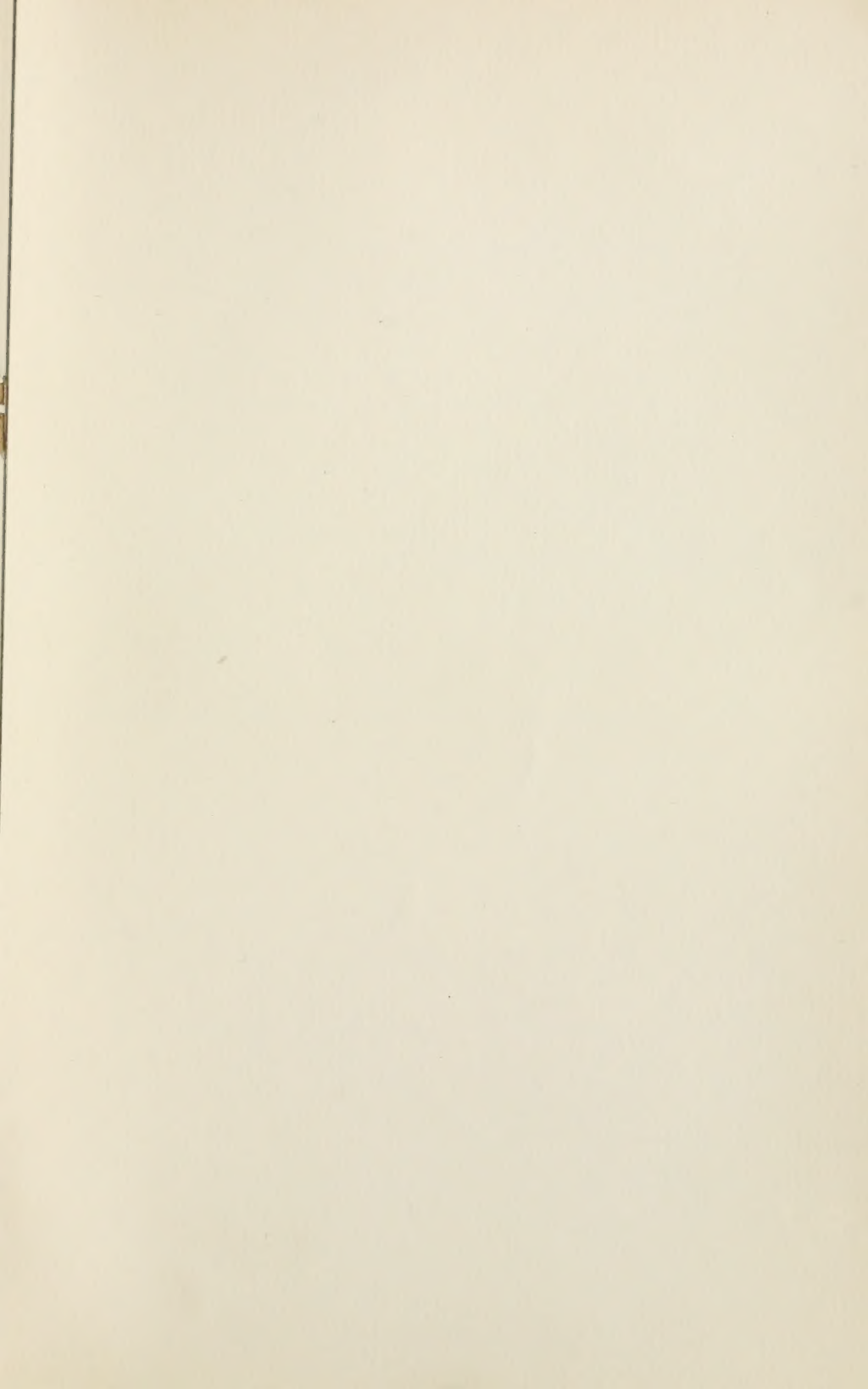
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